AMERICAN VETERINARY REVIEW.

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EDITORIAL.

EUROPEAN CHRONICLES.

ACTINOMYCOSIS.—All our readers are well acquainted with actinomycosis and with all its various manifestations. Existing more or less all over the world, under its name and with its macroscopic and microscopic lesions, its diagnosis has seemed almost always easy; and, to only mention a few, most of the tumors of the head in cattle, the well-known "wooden tongue," with others, have been classified amongst the forms of actinomycosis —that is, of that affection due to the growth of the streptothrix classified among the actinomyces.

Profs. Ligniéres and Spitz in an elaborated work just published in the *Bulletin of the Société Centrale de Médecine Veterinaire*, have shown the errors which have prevailed to this day, and called the attention to another form of disease, which resembles very much antinomycosis, but which differs entirely from it by its microbian cause.

Actinobacillosis is the name they give to the disease, to distinguish it from the actinomycosis of streptothrix nature. Called during the summer of 1900-1901 to investigate an epizoöty which prevailed extensively in the Argentine Republic, they observed that, besides the various forms which it presented, affecting as it does the skin, the subcutaneous connective tissue, the lymphatic glands, the salivary glands, the lungs, tongue and pharynx, and presenting in great part almost the typical symptomatology of actinomycosis, actinobacillosis was evidently

a contagious disease, in which contagion was sometimes quite easy, but that the contact of a sick animal with a healthy one was not an indispensable condition of its realization. Contagion, which is due to the introduction in the organism of a microbe, the *actinobacillus*, is found in the pus of the actinobacillar lesions, abscesses or wherever it exists.

The symptoms, the lesions and the characters of the pus, which is characteristic (milky white or slightly greenish, inodorous or having a little albuminous smell, very viscid, thick, paste-like in aspect, sticking to the finger, and never showing yellow or calcareous granulations, except in the lesions of the jaw), all are sufficient to establish the diagnosis, which, however, can be confirmed by examination of the pus under the microscope, when the presence of granulation or of masses of characteristic tuffs, are made out. These granulations are simple or compound, formed by one or a certain number of tuffs. The tuffs are formed of massive clubs, absolutely identical with those of the classic actinomycosis, varying in size, and present the histo-chemical reactions as in that disease. There is, however, an important condition of distinction, namely, that after fixation and coloration with the ordinary aniline color or the method of Gram, filamentous forms are never observed, and that to the point of view of differential diagnosis, it may be said that "the *characteristic of actinobacillosis is the constant negative result of the coloration by the method of Gram.*"

The communication of MM. Ligniéres and Spitz contains most interesting investigations on the microscopic, bacteriologic and experimental study of the microbe, its culture, virulency, toxines, and so forth, and the record of many inoculations made of pure cultures on guinea-pigs, rabbits, birds, rats, mice, dogs, cats, pigs, solipeds, sheep, and cattle, and terminate with the prophylaxy and the treatment, which are very much like those indicated for actinomycosis, iodide of potassium acting as an excellent specific. Immunity and serotherapy have also been considered. A serum has been obtained which has already given satisfactory results.

Fig. 1. Fig. 2.

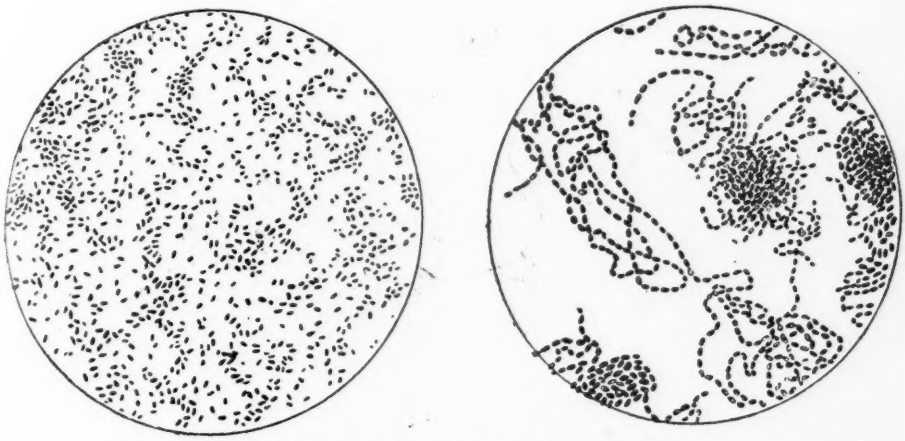
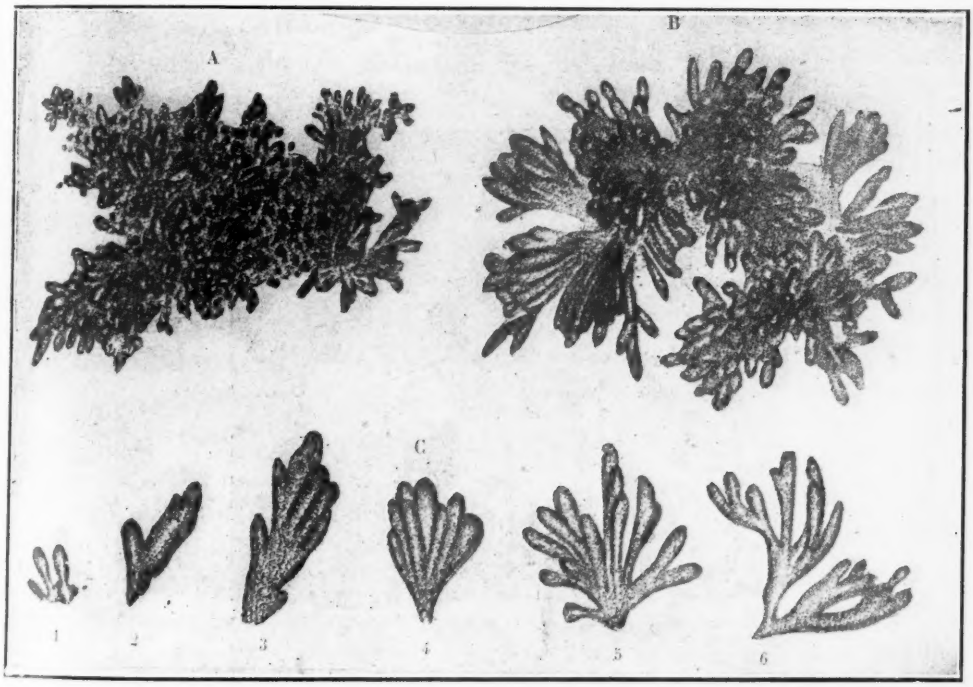
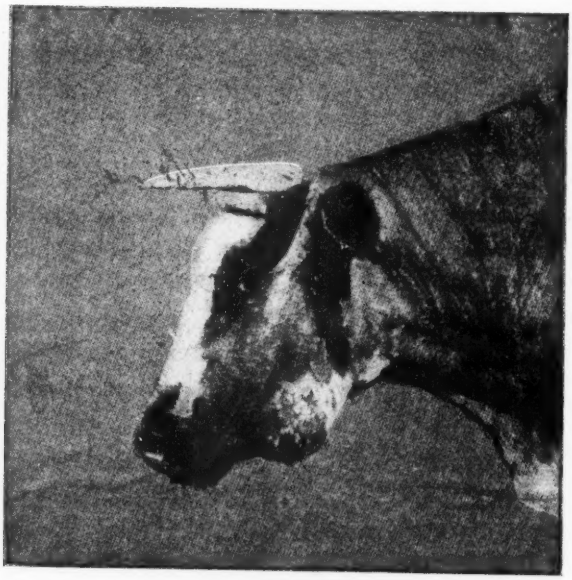


FIG. 1. Actinobacillus, Cocco-bacillar form Culture on Gelose.
FIG. 2. Actinobacillus, Strepto-bacillar form Culture on Bouillon-serum.



FRESH PUS. ACTINOBACILLI TUFFS.
a, young tuff, clubs forming. *b*, adult tuff, clubs well-developed.
c, groups of clubs isolated from the tuffs.

NATURAL ACTINOBACILLOSIS.
Lesions of the neck, cheek and lip.



EXPERIMENTAL ACTINOBACILLOSIS.
Intra-osseous inoculation.

It may be said that to the point of view of general practice the distinction established by the learned workers of Buenos Ayres is only of comparative importance, but with all that the subject is of the utmost importance and deserves attention. Actinomycosis is quite prevalent in the United States; large outbreaks among our cattle are not impossible, and our veterinarians cannot afford to be unable to recognize whether they have to deal with the classical disease or with actinobacillosis.

I subjoin here two plates showing the bacilli, the tuffs, and the aspect of two diseased animals.

* * *

THE BENEFITS OF ANTITETANIC SERUM.—It is well agreed that of all the diseases the animal organism is subject to, tetanus is one of the most serious. Herbivorous animals, and especially solipeds, are more sensitive to it, and few are those that recover from it. So many affected, so many dead, might be said. And on that account the discovery of a serum that prevents its apparition cannot be too much praised, nor the great part played by Prof. Nocard in the vulgarization of its use. Many are the publications that record its efficacy, and today it is a well-established truth that by the action of this precious agent attacks of tetanus no longer threaten.

In a recent extract, Prof. Labat, of the Toulouse School, has again showed the benefit that he obtained in his large clinics, and stated the fact that out of seven hundred and six operations which he has performed, many of which were liable to exposure to the tetanic germs, none contracted the disease.

And if these 706 may not be considered as a sufficient statistic, and if ten or a hundred times more are demanded by some as definitely conclusive, it must be, nevertheless, granted that many among them might have great chances to contract the disease. I am afraid that the practice of preventive vaccination is not very favorably or at least sufficiently practiced among American veterinarians, and this is my excuse for writing on the subject, and to give more facts in relation to it.

To be advantageous with certainty, one single injection of antitetanic serum is not sufficient, as observation and experience have demonstrated that if the preventive action is *sure*, it is also only *temporary*, and must be reinforced by successive ones. Two are sufficient—the first as soon as possible after injury or operation, the second eight or ten days later. If cases may occur where only one injection has done well, it is nevertheless always prudent to resort to the second.

The immunization does not act against the bacillus of tetanus, but against its toxine. Tetanus is an intoxication. The bacillus grows with difficulty in the organism. Its toxine acts on the nervous centres. It is taken in by the nervous threads, which are in the tetanigenous focus, and, following the nervous way, reach the centre. Inoculation of the antitetanic serum has for effect to stop or to modify the toxine before it reaches the brain. Inoculation of the serum, even intra-cerebral, remains powerless, if the toxine has touched the nervous element; once touched it cannot be cured.

This is why the injection of serum must be made early, and as its neutralizing influence may be exhausted before the secretion of the toxine is, it is prudent to renew it.

I have said that the nervous elements once touched by the toxine could not be cured, and consequently one can understand, when injected in an animal taken with the disease, why it is powerless to cure. And, yet, cases are quite numerous of recoveries attributed to the use of the antitetanic serum. How can this be explained?

In his article Prof. Labat says: "Acute tetanus cases, with rapid development, are fatal, and the serum powerless against them. Chronic cases which progress slowly seem to be influenced by injections of serum and recovery, if it takes place, occurs more rapidly." What can, then, be the effect of the serum? Its action must not be overlooked. It has the advantage of neutralizing the effects of the toxine which is continually formed at the seat of the traumatic spot. And if the intoxication is not carried to its extreme limits, the sick animal may, through

the serum he has received, be able to resist and gain time to continue the long effort necessary for his recovery. In other words, it is possible that in one case the efforts of the economy will be sufficient to allow him to get out victorious and the animal will recover; in another the dose of fatal toxine has not been sufficient, arrested as it has been by the serum, and the recovery has been easier. Therefore, injections of antitetanic serum are always indicated; they may be beneficial, in slow and chronic cases, but never with much great expectation of their effect, as if the toxines developed since the beginning of the injections may be destroyed, there is no certainty that those already produced shall not overcome the efforts of the patient.

To resume, antitetanic serum has an unreliable curative effect, when used in developed tetanus; it has a positive preventive action; its use must not be neglected in localities where tetanus is frequent, nor in all wounds dangerous to the point of view of its appearance; serum must always be injected immediately after the operation, and when in the presence of tetanigenous wounds.

* * *

MANY are the stories that go around among horsemen and veterinarians about the age of horses and the means to detect it; but, as I heard once said by an old dealer in New York, and as I read again lately in one of the "Causerie" of the *Semaine Vétérinaire* of my friend Pion, there is after all but one certain way to ascertain the age, and that is a certificate of birth. Those, however, are not kept except in some specially well conducted breeding establishments. Nevertheless, we have the teeth, which since the days of Girard seem to answer well all general purposes, and have superseded with much success the number of bones in the tail, the depth of the hollows of the orbit, etc., or even the number of lines teeth might present in their length, which an old German veterinarian, Dr. Brandt, tried to introduce in New York some 35 or 40 years ago. But all that seems to be insufficient, and, again, from Germany, says Pion, another means is brought to light: *the wrinkles of the horse's*

eye. Mother nature does not age all individualities alike, whether man or beast. Advanced old age or lasting resistance to the effects of time are met everywhere. Will a horse raised in misery, which has been licked, overworked, have the upper eyelid more wrinkled than that of another, well fed and having enjoyed a painless life?

But let us not be too severe. Our German colleague says that his method is applicable to horses more than eight years old. After that age, one wrinkle appears every year on the border of the inferior eyelid. Unfortunately the idea is not new and I believe has been known for years; for us, we remember well mentioning it to our students when lecturing on the age of animals; and it was not new then.

The method proves once more that after all there is nothing new under the sun. A. L.

OTTAWA WINS THE A. V. M. A. CONVENTION OF 1903.

The hearty invitation extended to the National Association by Dr. J. G. Rutherford on behalf of the veterinarians of Ottawa, Canada, and contiguous territory, to hold its Fortieth Annual Convention at the capital of the Dominion of Canada, has been accepted by the Executive Committee of that organization in the same spirit of fraternal fellowship in which it was offered. The genial Chief Veterinarian of our neighboring country was so forceful and evidently so earnest in the presentation of the claims of Ottawa as a point where much benefit could be bestowed both upon the Association and the profession of that realm, that he had almost won the case when he had finished speaking. Not content, however, with Ottawa's bright chances, he indicted a long letter to the various members of the Association, of which the following is a copy:

OFFICE OF THE CHIEF VETERINARY INSPECTOR,
OTTAWA, ONTARIO, 1st November, 1902.

DEAR SIR:—As you are probably aware, an invitation has been extended to the A. V. M. A. to hold its next annual meeting at Ottawa.

The idea of having the meeting at the Canadian Capital was first introduced by me at the recent meeting in Minneapolis, and has been heartily endorsed, not only by other veterinarians of the city, but by everyone else to whom the matter has been mentioned. The veterinary practitioners at a recent meeting passed the following resolution :—"That the veterinary practitioners of the city of Ottawa, here assembled, unanimously endorse the invitation extended by Dr. Rutherford to the American Veterinary Medical Association to hold its next annual meeting at Ottawa, and look forward with pleasure to the opportunity which will thus be afforded them of becoming acquainted with the members of that distinguished body and assisting in their entertainment during their visit to the Capital of Canada."

The Mayor and Council of the City have forwarded to the Executive Committee a cordial invitation to meet here next year, while the officers of the Department of Agriculture are also prepared to do their share in entertaining the members of the Association. Mr. Edwards, M. P., has expressed a desire that the Association should accept his hospitality for one day by going down the river 24 miles to Rockland and inspecting his magnificent herd of Shorthorns, which for a number of years has been conducted on the "Bang" system, under the supervision of one of our veterinary officers. Another afternoon can be profitably and pleasantly spent at the Central Experimental Farm, just outside the city limits.

There are numerous other attractions, such as the Parliament Buildings, the Chaudiere Falls, the Parks at Aylmer, Brittanie, and Rockcliffe, etc., which ought to make the visit interesting and agreeable, not only to the members, but to the ladies accompanying them.

Apart from all these, however, I may say that I am convinced that great good, not only to the Association, but to the profession generally, and especially to Canadian practitioners, will result from the holding of this meeting at Ottawa. The influx of such a large body of intelligent, highly trained and up-to-date veterinarians cannot fail to arouse widespread and most beneficial interest among the members of the profession throughout the Dominion.

That some such awakening is needed there can be no doubt, and it seems to me that the present is an opportunity which should on no account be neglected. I am satisfied that the membership of the Association will be largely increased by the affiliation of many Canadian veterinarians, who have hitherto looked upon the A. V. M. A. as a foreign body, and not as what it really is, an organization having for its sole object the development and general betterment of the veterinary profession on the North American Continent, regardless of international boundaries or political relations.

In view of all these facts, might I ask you to use your influence with the members of the Executive in favor of the selection of Ottawa, as the next place of meeting? You will all be warmly welcomed.

Hoping to hear from you in the affirmative, I remain,

Yours faithfully,

J. G. RUTHERFORD,

Chief Veterinary Inspector.

Just as the editorial forms of the December REVIEW were closing we received a hurried note from Secretary John J. Repp, writing from Chicago, in response to our request for the earliest information which he could furnish, which contained the following announcement:

"DEAR DR. BELL:—I now have eight (8) out of fifteen (15) votes, all that have been cast thus far, in favor of Ottawa, Can., as the meeting place for the A. V. M. A. in 1903. This practically decides the question in favor of Ottawa. . . . . "

While the REVIEW has always stood for centrality in the selection of a meeting site, it sees in the selection of Ottawa the opportunity to strengthen its membership by the addition of some of Canada's foremost veterinarians, and, if we may judge by those who have already become members, they are worth going a long way to secure. The Association already has a very cordial invitation to go to St. Louis in 1904, where the great exposition will be in progress; and so it will soon be back into the centre of the veterinary population, stronger and better for having visited "My Lady of the Snows."

PROSPEROUS TIMES FOR VETERINARIANS.

We well remember, six or seven years ago, when the country was in the throes of unprecedented commercial depression, all classes of business stagnant, livestock receiving more than their proportion of the general lassitude, that the profession, as a whole, felt somewhat panicy, and some thought that, like Othello, their occupation was or soon would be gone. Rumors of mechanical contrivances for transportation were rife, and the newspapers added to the general alarm by picturing the horse as destined within a very short period to be useful only as a

museum freak, illustrating a species of mammalia which had occupied from prehistoric times a prominent position in the life of man, the museum lecturer explaining how, only a few decades back, semi-civilized man had utilized the soliped as a beast of burden and even as a source of imaginative pleasure. At the time of which we speak the value of the horse was not great, and when sick or disabled he could more readily be replaced by a new one than to incur the expense and trouble of ministering to his ailments through those skilled in the treatment of his accidents and diseases. Two factors were responsible for his pecuniary degeneration: Lack of demand, through commercial inertia, and over-production.

When members of the veterinary profession became victims of the prevailing hysteria, and began to lose heart in the future of their calling, this journal did what it could to make them view the matter from a rational standpoint. It endeavored to point out the causes which had brought about the deplorable state of practice and prospects, and it maintained with a stout-heartedness which was by some termed "bravado" that when prosperity again settled upon our country, the agriculturist, the stock-raiser, and the veterinarian would participate in the general prosperity to a greater degree than ever before. We even insisted that the profession would be purified and made better through its adversity; that the mushroom graduates would be eliminated from our ranks, and that the better prepared and worthier men would survive to blaze the way and illuminate the pathway which was being made for a scientific and permanent profession.

It is our belief that the words written in those dark days have been verified to a point that seems almost prophetic. Those who have read the REVIEW carefully can probably call to mind other predictions, based upon logical reasoning, which are being worked out upon the lines suggested by us.

PRESIDENT JAMES LAW, of the New York State Veterinary Medical Society, has appointed as Prosecuting Committee, to

carry out the resolution adopted at the last annual meeting, the following members: Drs. E. B. Ingalls, of Mohawk; H. B. Stebbins, of West Winfield, and William Henry Kelly, of Albany (*ex-officio*). The Committee will at once take steps to establish a fund to enable it to proceed with a vigorous campaign against illegal practitioners, and the REVIEW trusts that the members of the profession in the Empire State will forward their contributions without delay, so that the greatest possible amount of good can be secured through the work of this Committee. The subject was fully gone over in the November issue of this journal, and readers are referred to that number for particulars. We congratulate President Law upon the wisdom of his choice, for he has secured three men whose devotion to their profession and whose conscientious regard for their obligations are beyond reproach, and in whom their brethren may repose their entire confidence.

WE are indebted to Charles E. Gray, M. R. C. V. S., Chief Cattle Inspector for Rhodesia, South Africa (formerly associated in practice with Dr. Wm. Sheppard, of Sheepshead Bay, N. Y.), for a very comprehensive report upon the epizoötic now prevailing among cattle in that country. The disease, which is known there as "redwater," is none other than our own Texas fever, and it has been so extensive as to seriously impair the commercial prosperity of the country. The report sent us contains half-tone illustrations of the cattle while sick, carcasses of those having succumbed, as well as microscopic fields showing the red blood corpuscles studded with the specific organism, the *Pyroplasma bigeminum*, as well as many clinical fever charts. In this connection we tender our thanks to Dr. Sheppard for copies of South African newspapers detailing the ravages of the disease and the Government's efforts at its suppression.

THE VETERINARY COLLEGES of the country, without an exception that we have heard, have larger classes this year than for half a decade.

ORIGINAL ARTICLES.

CONTRIBUTION TO THE STUDY OF CANINE PIROPLASMOSE.

By MM. Nocard, of Alfort, and Motas, of Bucharest.

Translated by A. Liautard, M. D., V. M.

(*Concluded from page 729.*)

BACTERICIDE ACTION OF THE SERUM OF IMMUNIZED ANIMALS.

When *in vitro* one part of virulent blood is mixed with three, four, or five of the serum of a dog recovered from the disease, the mixture can be inoculated with impunity to fresh dogs, even through the veins. These dogs remain healthy and their blood contains no parasites.

Are those dogs thus made refractory to the disease? No. Reinoculated 12–15 days later, with a small dose of virulent blood, they become sick and die as rapidly as the witnesses.

A preventive action of short duration might be expected. Nothing of the kind. If the serum is inoculated in one part and the blood in another, the inoculated dog takes the disease, as well as the witness, even when the serum is injected 12 or 24 hours before the virulent blood. Therefore, it is in reality a microbicide action of the serum.

This action does not take place when the serum has been heated to 56°-57° during half an hour, while, as we shall see further on, preventive serums can be obtained which keep their preventive action after heating to 56°-57° for one hour.

The microbicide action of the serum is observed more accused on dogs highly immunized by repeated injections of the virulent blood.

Experiments.—*Dog No. 26*, three months old; inoculated under the skin with a mixture of 50 drops of the serum of dog No. 20 (cured since one month), and 20 drops of virulent blood, after one and one-half hour contact. Examination of the blood made every day, for 11 days, has never shown parasites. At

the test (2 c.c. of virulent blood under the skin) the dog takes the disease, and, like a witness, dies on the fifth day.

Dog No. 68, 15 days old; receives under the skin a mixture of 50 drops of the serum of Dog No. 39 (recovered since six weeks) and 10 drops of virulent blood after one and one-half hour contact. The blood examined during 11 days revealed no parasites. The witness, Dog No. 70, inoculated with 10 drops of the same blood pure, took the disease and died on the sixth day.

Dog No. 77, adult; receives under the skin a mixture of 50 drops of the serum of Dog No. 50 and 20 drops of virulent blood, after one hour contact; its blood examined during 11 days contains no parasites. The witness, No. 83, inoculated under the skin with 10 drops of same blood pure, dies the sixth day.

Dog No. 76, reinoculated with ½ c.c. of virulent blood, takes the disease and dies the seventh day.

Dog No. 90, 15 days; receives under the skin a mixture of 20 drops of virus and 20 of the serum of the *hyperimmunized* Dog No. 8, after one and one-half hour contact; during 11 days, the blood shows no parasites. The witness, No. 91, is inoculated the same day and in the same way, with a mixture of 1 c.c. of virus and 1 c.c. of prepared serum of sheep; he dies after six days.

Dog No. 124, 15 days; receives under the skin a mixture of 10 drops of virulent blood and 25 drops of reinforced serum from Dog No. 8. Its blood never presented any parasites. The witness, No. 123, inoculated with 10 drops of the same blood, dies the fifth day.

The bactericide action of the serum is surely due to the refractory condition of the dog which has furnished it, as the serum of healthy dogs is not bactericide.

EXPERIMENT.—*Dog No. 101*, 15 days; receives under the skin, a mixture of 50 drops of serum of normal dog with 10 drops of virulent blood after one and one-half hour contact; this dog has hæmatozoæ already on the fourth day, and dies the fifth after the inoculation.

The bactericide action of the serum does not belong only to dogs recovered from the disease; it can also be observed on animals specifically refractory upon which repeated injections of virulent blood have been made.

A Southdown sheep receives in twelve subcutaneous or intravenous injections, between April 24 and Nov. 9, 1901, 290 c.c. of dog's blood, very rich with parasites. Except weak oscillations in the temperature, occurring in the morning or the evening of the injections, this sheep never exhibited the slightest inconvenience; parasites were never found in its blood. The number of its red corpuscles has not varied in a sensible manner. The serum of this sheep has proved itself clearly bactericide, but at a lesser degree than the serum of recovered dogs, and especially of those where the immunity had been strengthened by repeated injections of virulent blood.

EXPERIMENTS.—*Dog No. 91*, 15 days; receives under the skin a mixture of 1 c.c. of the serum of the prepared sheep, and 1 c.c. of virulent blood after one and one-half hour contact; he dies infected after six days.

Dog No. 66, 15 days; receives under the skin a mixture of 50 drops of serum and 10 of virulent blood, after one hour contact; has not shown any hæmatozoæ during 13 days. Reinoculated under the skin the fourteenth day with ½ c.c. of virulent blood, he takes the disease and dies the third day.

Dog No. 69, 15 days; receives under the skin of the left thigh 50 drops of serum and under that of the right 10 drops of virulent blood; he takes the disease and dies after six days.

Dog No. 67, 15 days (*witness*); receives under the skin a mixture of 50 drops of serum of *normal* sheep and 10 drops of the same virulent blood; takes the disease and dies the sixth day.

Dog No. 70, 15 days (*witness*); receives under the skin 10 drops of the same virulent blood *pure*; takes the disease and dies the sixth day.

Dog No. 79, 15 days; receives under the skin a mixture of 50 drops of serum of the treated sheep, heated at 56°–57° with

10 drops of virulent blood after two hours contact; takes the disease and dies the sixth day.

The serum of sheep treated by injections of virulent blood is very hæmolytic *in vitro* for the blood of dog; one might believe that the parasites made free by hæmolysis are more easily absorbed by the phagocytes of the inoculated dog. The following experiment shows that it is not so:

Dog No. 68, 15 days; receives under the skin a mixture of 10 drops of virulent blood with 50 of the serum of a sheep not treated (serum made hæmolytic by repeated injections of blood of normal dog). He takes the disease by the fourth day and dies the sixth.

PREVENTIVE ACTION OF THE SERUM OF IMMUNIZED DOGS.

We have shown in the preceding paragraph that the serum of cured dogs is, in small injected doses, unable to prevent or keep back in a noticeable manner the fatal effects of a test inoculation. The experiments below show that, when injected in larger doses, this same serum may retard or even prevent the fatal action of virus inoculated 24 or 48 hours after.

But the preventive action of the serum is much better if it is taken from dogs hyperimmunized with large quantities of virulent blood.

First Series—Serum of Immunized Dog.—*Dog No. 97*, aged 15 days; receives under the skin 3 c.c. of the serum of Dog No. 8 (which, six months after recovery, has received 30 c.c. of virulent blood); 30 hours after, 1 c.c. of virulent blood is inoculated under the skin. Already numerous parasites on the sixth day; death on the twelfth.

Dog No. 98, same litter; receives under the skin 5 c.c. of the same serum; 30 hours after, subcutaneous inoculation of 1 c.c. of virulent blood. On the fifth day, parasites are seen; death on the eleventh.

Dog No. 99, same litter (witness of the two preceding); inoculated under the skin with 1 c.c. of the same virus; parasites present on the fourth day; death on the seventh.

Dog No. 94, aged 12 days; receives under the skin 10 c.c.

of the same serum. After 24 hours is inoculated subcutaneously, at the same time as Dog No. 92, witness, with ½ c.c. of virulent blood. Witness dies the seventh day; the other shows parasites on the eighth only, and dies the thirteenth.

Dog No. 87, 15 days old; receives under the skin 13½ c.c. of same serum; 48 hours after is inoculated subcutaneously, at the same time as a *witness*, No. 88 (adult), with 1 c.c. of virulent blood. Witness dies the fourteenth day. Dog No. 87 shows for several days a small number of infected corpuscles, briskly phagocyted by big mononuclears; but its temperature remains normal and its general condition satisfactory. Recovery was rapid.

SERUM OF HYPERIMMUNIZED DOG.—In our second and third series of experiments we have used the serum of the same dog, No. 8, whose immunity was strengthened by new injections of virulent blood, forming a total quantity of injected blood of 52 c.c.

This serum was first heated to 56°-57° for half an hour.

SECOND SERIES.—*Dog No. 102*, aged 15 days; receives under the skin 5 c.c. of serum. After 24 hours he is inoculated, at the same time as a *witness* of the same age, with 3 drops of blood very rich in parasites. *The witness dies the sixth day.* No. 102 remains healthy; his blood contains no parasites. Reinoculated on the nineteenth day with 1 c.c. of virulent blood (in the same time as two witnesses, No. 93 and 110, which die after seven days), he presents on the fifth day a small number of parasites, which are the object of a very brisk phagocytose; but he remains healthy and survives.

Dog. No. 103, of same litter; receives under the skin 3 c.c. of heated serum. After 24 hours, is inoculated with 3 drops of virulent blood (which kills a witness, No. 106, in six days). Its blood examined during 10 days, shows no hæmatozoa. Reinoculated the eleventh day with 1 c.c. of virulent blood, he has parasites six days after; for about a week he shows all the signs of the disease—dullness, depressed condition, globular anæmia—nevertheless, parasites are not numerous and the ob-

ject of a brisk phagocytose; finally the general condition improves and twenty days after the second inoculation he can be considered as cured. The blood did not contain parasites any more.

Dog No. 104, same litter; receives under the skin 5 c.c. of the same serum. After 24 hours, is inoculated with 5 drops of very virulent blood, 3 drops of which kill a witness, No. 106, in six days. The blood examined daily for 32 days shows no parasites. Reinoculated the thirty-fifth day with 10 drops of virulent blood, which kills *witness* No. 123 in five days, he escapes the disease after showing only few parasites the tenth day.

Slut No. 105, same litter; receives under the skin 10 c.c. of the same serum; 24 hours after, is inoculated with 3 drops of blood, whose virulency has been demonstrated by witness No. 106. Examined during 10 days, its blood shows no parasites. Reinoculated the eleventh day with 1 c.c. of virulent blood, her blood shows few parasites entirely phagocyted on the fifth day; yet the general condition was gradually going down; there is progressive anæmia and death occurs the eighteenth day after the second inoculation.

THIRD SERIES.—*Dogs No. 119, 120, 122*, 15 days old, receive subcutaneously 3 c.c. of serum. After 24 hours No. 119 is inoculated under the skin with 10 drops of very virulent blood. Same inoculation after 48 hours on Dog No. 120.

Dog No. 122 is inoculated only after three days. A fourth dog of the same litter, No. 123, used as witness, dies infected four days after the virulent inoculation.

No. 122 has parasites four days after the inoculation, and dies the seventh day.

No. 119 shows parasites the sixth day, and dies the eighth.

No. 120 dies the ninth day; he had parasites since 48 hours.

From these experiments the following conclusions can be drawn:

(1) The serum of recovered dogs possesses a clearly preventive action; but this is weak; to bring it out, large doses of serum must be injected; 10 c.c. are not sufficient to prevent

death ; only a short arrest in the development of the disease is obtained (Dog No. 94). Only one of the animals of our experiments has stood the injection of the serum of a recovered dog (No. 87), but he had received 13½ c.c. of serum, an enormous dose for a small pup of 15 days.

(2) If the immunity of the recovered dogs is reinforced by repeated injections of virulent blood, serums are obtained with a preventive power acting on much less elevated doses. All the dogs of the second series resisted, after having received 5 c.c. and even 3 c.c. of serum, to the virulent inoculation, which has killed witness in six days. And yet too large dose of virus cannot be injected. In our third series, all the subjects had received 3 c.c. of the same serum. All three died—with great delay—at the test inoculation ; but 10 drops of a virus, which kills in doses of 1 drop witnesses of the same age, had been inoculated.

(3) The serum keeps its preventive power, when it has been heated to 56°–57°, for half an hour.

* * *

Therefore immunity against virulent inoculation, always fatal for witnesses, can be given. But that conferred by serum is of short duration.

The four dogs of our second series had stood the inoculation of virus made 24 hours after the injection of the serum ; they had been reinoculated 11, 19 and 35 days after ; all showed few hæmatozoæ in their blood ; two remained with all appearances of health ; the two others have been very sick. One, however, got well ; the other died, and curious enough, he had received the largest dose of serum and been reinoculated the earliest, the eleventh day. It is true that this second inoculation has been very severe ; 10 drops of virus fatal for fresh dogs of that age with dose of 1 drop only had been injected.

* * *

We have seen above that the serum of sheep treated with repeated injections of dog's blood very rich in parasites had a clearly marked bactericide action.

The following will show that this serum has only a weak preventive power, secured by only a delay in the evolution of the disease.

Dog No. 137, 15 days old ; receives subcutaneously 20 c.c. of serum of sheep (which has received 290 c.c. of blood very rich in parasites) ; this serum has been heated at 57° for 30 minutes to destroy its hæmolytic power. After 24 hours, 10 drops of virulent blood are injected subcutaneously and also to *witness No. 132* of same age. This last has parasites already on the fourth day, and dies the fifth after the inoculation.

No. 137 shows the parasites only the seventh day and dies the ninth.

* * *

The preventive action of a stated serum requires much smaller dose when it is mixed with virulent blood, before making the injection. The serum must be heated first at 57° so as to destroy its microbicide action.

EXPERIMENT.—*Dog 143*, five days old ; receives under the skin a mixture of 50 drops of the reënforced serum of Dog No. 8 (heated at 57° for half an hour) with 20 drops of infected blood. Examined for 10 days, the blood has never revealed parasites.

Witness Dog 141, of same litter, died five days after receiving 10 drops of the same blood under the skin.

Identical results are obtained when, after the action of the serum upon the diseased corpuscles, they are isolated by repeated turbinations, after washing with physiological water.

EXPERIMENT.—*Dog 130*, 15 days old ; receives under the skin the deposit, obtained after three turbinations and two washings, of a mixture of 50 drops of reënforced serum of Dog No. 8 and 20 drops of parasited blood. Examined during seventeen days, its blood has never shown any parasites.

It seems then that to the contact of the serum of hyperimmunized dogs the parasited corpuscles fix in a strong manner the substance of the serum which leaves them defenceless to the action of the phagocytes.

CURATIVE ACTION OF THE SERUM OF HYPERIMMUNIZED DOGS.

The serum of dogs whose immunity has been increased by repeated injections of virulent blood can act only as a preventive when it is injected before the virulent inoculation. It may also prevent death when injected in strong dose 24 or even 42 hours after a virulent injection, which kills witnesses in five days. It is powerless to delay death when injected after the apparition of the parasites.

EXPERIMENT.—*Dog No. 131*, aged 10 days; receives under the skin, Feb. 14, 8 drops of virulent blood; Feb. 16, 42 hours after, an injection is made under the skin of 20 c.c. of the reenforced serum of Dog No. 8 (which has received, after recovery, 72 c.c. of virulent blood). February 19 he shows very rare parasited corpuscles. The 20th and following days, the parasites are somewhat more numerous; the general condition remains good. The 28th, scarcely a few parasites are observed. March 2, none can be found. The animal is very lively, its weight is almost doubled.

Dog No. 132, 10 days old, *witness* and brother of the preceding; inoculated February 14 with 8 drops of virulent blood. The fourth day, Feb. 18, its blood contains parasites; 20 c.c. of the serum of Dog No. 8 are injected subcutaneously. He dies the 19th with a large number of parasites in the blood of the heart and of the viscera.

ATTEMPTS AT IMMUNIZATION WITH INJECTION OF OLD OR HEATED BLOOD.

(1) OLD BLOOD.—We have said above that virulent blood, obtained pure and kept cool (in the cellar), away from light, remains virulent for a time which varies between 14 and 25 days, according to season. Could not this blood, having become unable to give the disease, when injected in large dose, confer to them immunity? The two following experiments are not favorable to this supposition:

Dog No. 28, receives under the skin 15 c.c. of blood kept in cellar since fourteen days. When fresh this blood was very

virulent; inoculated then to Dog No. 21 in 2 c.c. dose; it killed it in five days.

Dog No. 28 examined carefully during 10 days has never shown the slightest trouble; its temperature remained normal, its blood never had parasites. Reinoculated subcutaneously with 3 c.c. of virulent blood, he became very sick; had numerous hæmatozoæ, but yet recovered.

Dog No. 29, receives in the jugular 15 c.c. of the same blood, 19 days old; watched during twelve days he shows nothing abnormal, no fever, no parasites. The testing inoculation kills him in six days.

(2) HEATED BLOOD.—We have said above that the parasite is killed with a temperature comparatively not high, 45°.

Perhaps, by measured heating, it might be possible to attenuate its virulency and transform it into vaccine? This hope was not realized. The following shows that the attenuation of the virus by heating, if not impossible, is at least very difficult to realize.

All these experiments were made on young pups, about three weeks old.

Dog No. 22, receives under the skin 5 c.c. of virulent blood heated at 50° for 30 minutes. Examined during eighteen days, he shows no fever nor parasites. Testing inoculation kills it in 56 hours.

Dog No. 25, receives under the skin 10 c.c. of blood heated at 50° for one and one-half hours. During eighteen days nothing abnormal is detected. Dies in four days after the testing inoculation.

Witness No. 23, receives under the skin 3 c.c. of the same blood not heated; he takes the disease and dies in five days.

Nos. 44 and 45, inoculated subcutaneously with 3 c.c. of virulent blood, heated at 48° for half an hour.

Nos. 46 and 47, inoculated with 3 c.c. of same blood heated at 45° for half an hour.

These last four dogs remained in good health.

Witness No. 48, inoculated with the same blood not heated, dies in six days.

With the testing inoculation, made the tenth and twenty-third days after, the four dogs above took the disease and died between the fifth and seventh day.

Nos. 56 and 57, inoculated subcutaneously with 2 c.c. of virulent blood heated for half an hour at 43°, die the fifth and eighth day.

Witness No. 58 inoculated under the skin with the same blood, not heated, dies the seventh day.

No. 71 receives 2½ c.c. of blood heated at 43° for one hour, dies the sixth day.

No. 72, same blood heated half an hour at 44°, dies the fifth day.

No. 74, same blood heated at 44° for 50 minutes, dies the seventh day.

No. 75, same blood heated at 44° for one hour, dies the ninth day.

Witnesses Nos. 70, 76, 1 c.c. of same blood, not heated, die the fifth and sixth day.

No. 81, 2 c.c. of virulent blood heated at 44° for one and one-half hours.

No. 82, 2 c.c. of same blood heated at 44° for one hour and fifteen minutes.

These two dogs examined for fifteen days have never shown parasites.

Witness No. 83, which had received only 1 c.c. of the same blood, not heated, was dead the sixth day.

No. 82, reinoculated under the skin 15 days after, with 1 c.c. of virulent blood, not heated, dies the sixth day.

TO RESUME.

Virulent blood heated at 45° and above loses all virulency.

Below 44° heated, kept up for more than one hour, seems to have no action on the vitality and virulency of the parasite.

Heated at 44° for 30, 50 minutes or one hour, the blood remains virulent and kills still the small dogs that are inoculated

with it; but death occurs so much later that the duration of the heating has been longer.

Heating at 44° for one and one-half hours, and even one hour and fifteen minutes, destroyed the virulency.

None of the dogs that resisted the inoculation of heated blood have stood the testing inoculation. With the injected doses, heated blood does not seem able to confer immunity.

ATTEMPTS AT TREATMENT.

All our attempts have failed when applied to the rapid form of canine piroplasmose.

Salts of quinine and arrhena, which give such good results in the treatment of paludism of man, have seemed to be entirely powerless. Whether the treatment was begun before or immediately after the virulent inoculation, the dogs treated have died as certainly and quickly as the witnesses.

We have also treated a few dogs suffering with the slow form; but as those dogs mostly recover without treatment, it is difficult to define the part played by the treatment in the recoveries that we have obtained. However, it has seemed that the dogs treated by subcutaneous injections of arrhena (2 or 3 milligrams to kilog. of the dog) convalescence has been more rapid.

THE *Colorado Medical Journal* wisely calls attention to one of the dangers from the publication of the views of Professor Koch. Ever ready to seize upon anything favorable to their own advantage, the packers at once began to sell meat known to be tuberculous. Why could not we remember his folly in announcing his cure for consumption, only to the disappointment of sick people all over the world. This was soon forgotten, and we at once adopted his views as uttered before the congress in Germany, only to find that his ideas were erroneous. Professor Pearson, State Veterinarian, once more shows his fallacies when he alluded, at the recent session of veterinarians in Philadelphia, to the fact that we dare not cease to protect our children and all from the dangers of tuberculous meat and milk. In this connection, we may mention the need of some law to assure us clean, whole, unwatered milk.—(*Public Health, Philadelphia, August, 1902.*)

HAEMORRHAGIC SEPTICAEMIA.

By M. H. Reynolds, M. D., V. M., University of Minnesota, St. Anthony Park, Minn.

Whether it is proper to speak of this as a disease or as a collection of diseases due to identical or similar germs may possibly be questioned, but for the present at least, and until we have more light on the subject, we may speak of it all as hæmorrhagic septicæmia. This disease is very interesting on account of several peculiarities. It is interesting because of its protean forms; it is interesting because medical treatment so far as we know is absolutely useless and hopeless. We are utterly helpless in the matter of prevention because we have practically no information as to the method of infection or method of spread. Those who have had a chance to study the various outbreaks in Minnesota have been quite unable to trace any connection between one outbreak and another, or to trace a previous history for any given outbreak. It is proving interesting to those members of the veterinary profession who have been so fortunate or unfortunate as to come into contact with it, because of the extreme difficulty of making antemortem diagnoses. In some outbreaks that have been carefully studied, antemortem diagnosis for the first case at least was apparently impossible; but on the other hand there have always been plenty of opportunity for examinations post-mortem, and here the evidence is usually clear.

There is a very practical side to this disease, especially when considered from the farmers' standpoint. It appears suddenly and under all sorts of conditions; a number of animals, usually a large proportion, die, and the disease disappears as suddenly as it came. The owner has lost a certain amount of property, in live stock, without a trace of information as to whence the disease came or how soon the visit may be repeated. The owner would be especially interested in knowing the method of infection and the possible agencies through which his herd may receive a reinfection. If hæmorrhagic septicæmia, like glanders, comes by a specially introduced infection, then he has a certain

proposition to face. If, on the other hand, the microörganism of hæmorrhagic septicæmia, which resembles in all laboratory peculiarities the germs of swine plague, are commonly present in less virulent forms or present under conditions where there is but limited opportunity for their development and the production of disease, then the farmer may expect an outbreak of it at any time and so far as he knows under any conditions, and he has no means of guarding against it—a quite different proposition.

Etiology.—The specific cause of this disease is apparently *Bacillus bovisepticus*, which cannot be distinguished from the bacillus of swine plague by cultural or morphological characteristics. How this microörganism spreads or how it gains entrance into the animal body is not known, but at present we suppose that the entrance may be effected by inoculation; through the respiratory, or the alimentary mucous membrane.

History and development.—The onset is usually sudden and most unexpected, and yet in some recent outbreaks of disease in which the presence of the microörganism was demonstrated, the onset was quite slow and the cases were distinctly chronic. Hæmorrhagic septicæmia is probably more prevalent than is generally supposed, and it is undoubtedly true that a great many outbreaks of this disease have been incorrectly diagnosed as anthrax, symtomatic anthrax, infectious cerebro-spinal meningitis, corn stalk disease, and very possibly as parturient paresis. From reports that have appeared in the veterinary journals at various times it is very evident to those who have had opportunity to study this disease, that outbreaks of hæmorrhagic septicæmia have appeared in a great many different sections of the United States at least, and have been incorrectly diagnosed. Cases which have been described in the East as cerebro-spinal meningitis have been very plainly hæmorrhagic septicæmia, and this is also true of corn stalk disease in the West.

Season and climatic conditions apparently have nothing to do with the prevalence, virulence or disappearance of this dis-

ease. The mortality for the past few years during which it has been studied in Minnesota has been extremely high, the cases all ending abruptly in death, with the exception of a few outbreaks where the cases were chronic. These tended to disturb our supposed information concerning the disease, particularly in reference to its rapid and invariable fatality.

More recently an outbreak appeared under the observation of the writer where all cases gave uniformly clear antemortem symptoms of cerebro-spinal meningitis, and yet examinations post-mortem revealed in addition to the expected lesions of cerebro-spinal meningitis, the characteristic hæmorrhages of hæmorrhagic septicæmia, and the organism which is supposed to be the specific cause of the disease was demonstrated beyond reasonable question. (See "University Experimental Farm Outbreak," provisional report of Dr. Wesbrook.) In this outbreak as in all the earlier ones, the mortality was very high, nine animals sickened and nine died.

Symptoms.—The writer has had the privilege of studying closely the development and full history of about twelve cases. The temperatures were uniformly normal or subnormal, except in two cases where the temperature rose rapidly just before death. There was nothing in the nervous disturbances that was especially diagnostic, except that in several cases the skin has been hyper-sensitive. The subjects have usually been disinclined to move about apparently because movement caused pain. In an outbreak which occurred at the University Experimental Farm, and which came under the writer's daily observation, the prominent symptoms in all cases were those of cerebro-spinal meningitis, but it would be very misleading to suggest that these nervous disturbances are characteristic of hæmorrhagic septicæmia. Local lesions which correspond to the tumors of anthrax and symtomatic anthrax are very limited or wanting. The urine in many cases has been scanty or blood stained, and this is also true of the bowel discharges. The examinations post-mortem are very much more definite and satisfactory. The blood is apparently normal. Subcutaneous hæm-

orrhages are common and vary greatly in size and intensity ; in some cases they are large and the hæmorrhagic condition is marked. In other cases the hæmorrhages are punctiform, scattered, and few in number. The hæmorrhages may appear almost anywhere in the subcutaneous tissues, or involve any of the viscera. The spleen is not enlarged, but there may be hæmorrhages on the surface. The hæmorrhages usually have very sharply defined borders and are easily recognized as hæmorrhages. The serous membranes frequently show small hæmorrhagic areas, and the heart especially the auricles are often intensely hæmorrhagic.

We may summarize the symptoms as follows: As a rule the disease appears suddenly; the case develops very rapidly and terminates fatally. The antemortem symptoms are very unsatisfactory from a diagnostic standpoint. The post-mortem symptoms are definite and as a rule easily recognized and consist of more or less extensive hæmorrhages which are sharply defined when they appear upon the surfaces of the viscera and serous membranes.

Losses in Minnesota.—It is now about two years since this disease was recognized in Minnesota by Dr. Wilson of our State Board of Health Bacteriological Laboratory. During these two years there have been reported to the State Board of Health 80 outbreaks among Minnesota cattle; these outbreaks involved 52 different farms, appeared in 20 different counties, and resulted in the loss of 551 cattle.

It is safe to assume that a considerable number of other outbreaks appeared but were not reported.

Four outbreaks have come under the writer's personal observation and in three of these the opportunity was unusually good for careful study of the cases from a clinical standpoint.

OUTBREAKS WHICH CAME UNDER DIRECT OBSERVATION.

Johnson Outbreak.

Dr. Wilson and the writer went to North Branch, Chisago County, October 30th, for the purpose of investigating a very

virulent disease that had appeared in a certain herd. The previous history was rather unsatisfactory because indefinite and incomplete. It was learned that five calves belonging to another party had died in a certain pasture earlier in the season, probably in June or July. The history of these cases agreed with the recent cases which we went to investigate, in that the calves had died suddenly; there had been some slight local, diffused swellings, and on skinning, dark red areas were noticed by the owner. Another neighbor had lost suddenly a cow some months before with symptoms and history that agreed closely with those of the present outbreak and the five calves previously mentioned.

Mr. Johnson reported that he had 20 cattle in his herd when the disease first appeared on September 15. A portion of the pasture was dry; another portion quite low and wet, but without timber. None of the cattle had had access to standing corn stalks. He had lost two animals about November 1 (1899), from what he supposed was the same disease. These were calves about six months of age. The owner noticed that in these previous cases the manure was coated with blood or showed bloody streaks. During 1900 one was taken sick and died suddenly in July, another about the middle of October. He had lost also one roan steer calf, seven months old, which died sometime early Monday morning, October 29th, and a red heifer calf about the same age, which died on the same Monday. Both deaths occurred suddenly. The former was noticed to limp some in walking, the trouble being apparently in the left front limb. These two calves were examined post-mortem by Dr. Wilson and the writer on Wednesday, October 31st.

The following parts were examined and all parts were normal except as noted. Parts examined: subcutaneous tissues; mucous membranes; heart; lungs and pleuræ; alimentary tract; bladder; post pharyngeal, mediastinal, bronchial, mesenteric, portal and inguinal lymphatic glands; kidneys; and spinal cord in the anterior cervical region.

Autopsy 1.—A red steer calf in fair condition and about four

months of age, had died about 36 hours prior to our visit. The carcass was moderately bloated, otherwise in fair condition for examination. The skin was discolored in places, especially where denuded of hair. The subcutaneous areolar tissues were emphysematous with fairly well-defined hæmorrhages, especially marked at the throat and adjacent portions of the inferior cervical region. The superficial muscles beneath these infiltrated areas were similarly involved. The surfaces of the limbs below the knees, and hocks, did not show hæmorrhages as in the cases previously reported by Drs. Wilson and Brimhall. There were no wounds of the skin near the feet that could be detected. Tracheal, œsophageal, and laryngeal mucous membranes show marked inflammation, being dark, swollen and wet.

The kidneys were probably normal at the time of death, but when examined they were soft and showed numerous light yellowish areas about 8 mm. in diameter. The lungs showed a few small, sharply defined hepatized areas, markedly resembling the peculiar lesions of swine plague. The owner had noticed that this calf was quite lame, while sick, and it is interesting to note that in the examination, one of the peculiar areas of hæmorrhagic septicæmia was found involving the shoulder muscles. Several articulations showed ulcerations of the articular cartilages, especially the humero-radial and tibio-tarsal. These ulcerations were about 31 mm. long by 12 mm. wide.

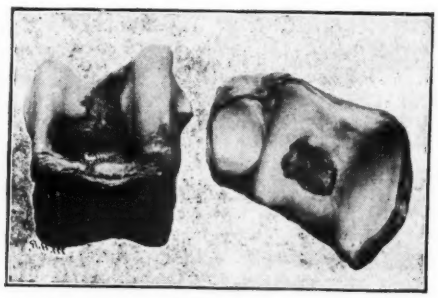


FIG. 1.—Ulcerations of Tibio-tarsal Articular Cartilage. Tibia and os calcis. Johnson outbreak, autopsy No. 1.

Autopsy 2.—This was a red heifer calf, 7 or 8 months of

age, in fair condition. The animal had been dead about 48 hours, but showed less post-mortem change than No. 1. So far as superficial parts are concerned the post-mortem findings of No. 1 will apply very closely. This is also true of the lymphatic glands, mucous membranes and kidneys. The dura mater in the anterior cervical region had evidently been the seat of a very active inflammation. The lungs showed the peculiar hepatized areas of swine plague closely resembling those found in No. 1.

Caffrey Outbreak.

The second outbreak studied by the writer in part with Dr. Wilson, occurred near Cokato. My first information came in the following letter:

COKATO, Nov. 26, 1900.

Dr. M. H. Reynolds, St Anthony Park, Minn.:

DEAR DOCTOR:—Mr. Caffrey, living two miles north, lost two cows about three days ago, and a third one is nearly dead now.

The first cow was apparently well at night, and was found dead in the morning. The next day another cow was taken sick and I was called. The second cow was comatose, unable to rise, and died in about twenty-four hours.

Symptoms: This cow was lying on her breast with the head turned to one side *as in parturient paresis.* She was comatose, her respiration stertorous; temperature 101; pulse could not be taken.

Post-mortem: There was cherry-wine colored serum in the abdominal cavity; the small intestines were very badly inflamed; the liver was slightly swollen, dark and easily torn; the spleen was normal in size and a little darker in color than normal. The cephalic lobes of the lungs were inflamed, the heart had a parboiled appearance, and everything indicated a generalized septicæmia.

Both lungs were congested.

This farm is situated at the southwest corner of Cokato Lake. Some of the land is low, some hilly.

These cattle were fed on corn stalks, hay and shorts.

Yours respectfully,

H. A. HELA, M. D. C.

In company with Dr. Wilson the writer reached Mr. Caffrey's place on Nov. 29th. We learned that the Caffrey cattle had been kept in pasture as long as the grass was good, and

were stabled at night. Later in the season they had been fed on wild hay, corn stalks and shorts, the feed being apparently all fresh and good. The pasture in which the cattle had been during the summer and fall contained both high and low ground with some timber and brush. The owner had noticed in those cases which had died before we reached the place, that the head had been drawn far back in some instances, and in others the head was held in the flank as in parturient paresis, these positions being assumed shortly before death. He had noticed no superficial swellings, but said that the animals seemed to have irregular chills. He had also found blood stained areas in all cases on the surfaces of the bodies after skinning. The sick animals had shown complete loss of appetite from the time they were first noticed ill. There had been no swine disease or chicken cholera in the neighborhood during the past season.

The following deaths, 1–6 inclusive, were reported to us by the owner:

Death 1.—A six-year-old cow in fair condition had appeared normal in all respects on the evening of Nov. 22, and was found dead the next morning, the owner not having supposed that the cow was sick. The cow had died in an easy natural position, as though resting. Evidently there had been no struggle.

Death 2.—Another six-year-old cow was found down on Nov. 22, early in the morning, seven o'clock. She was unable to rise, held the head in the flank and died on the evening of the 23d. There was persistent constipation. No superficial tumors.

Death 3.—A spring steer calf, in good condition, was first noticed sick on the evening of Nov. 25. This animal tried repeatedly to rise and failed. Died about 10 A. M., November 26th. Constipation persistent.

Death 4.—This was a four-months-old calf. The owner heard a noise in the stable about 2.00 A. M. on November 27th. He went out to investigate and found the calf jumping into the

manger and shoving the head against the wall. This calf died at 11.00 A. M. with the head drawn far back.

Death 5.—This was a spring calf, supposed to be in perfect health until the morning of Nov. 27 when it was found almost dead. The animal died a little later. Constipation persistent.

Death 6.—An eight-year-old black cow in good condition, was first noticed sick Nov. 28th at 7.00 A. M., and found dead about 10.30 A. M. She dropped suddenly at 7.30, and subsequently tried repeatedly to rise but could not. She lay on the left side with the head in the flank much of the time. Later the cow succeeded in getting on her feet, but fell suddenly with the posterior limbs spread outward and backward, the body dropping suddenly from a standing position to the ground. Later the cow drew up her limbs and lay over on one side in a rather natural position with the head swung backward. She struggled considerably but later died easily and slowly.

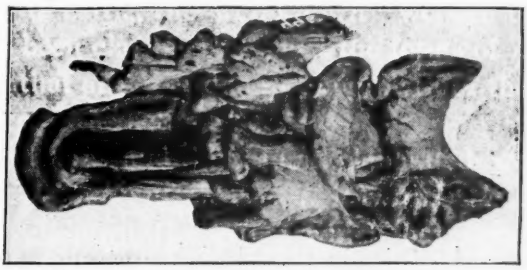


FIG. 2.—General View of the Small Intestines. Caffrey outbreak, death No. 6. Showing many small, sharply defined hæmorrhages on peritoneal surface.

Autopsy.—The tissue lesions were rather severe. Both lungs showed considerable interlobular emphysema, which was marked in the ventral lobes. Petechiæ were especially marked on caudal lobes. Right caudal lymphatic gland was dark, swollen and showing petechiæ.

The diaphragm showed scattering petechiæ on peritoneal surface of tendon. The heart was markedly hæmorrhagic, the hæmorrhages being both superficial and deep.

The gall bladder was filled with a dark bloody fluid. Its

walls were infiltrated and œdematous and the surrounding tissues were œdematous.

There were petechiæ on the third stomach penetrating the walls. Eighteen inches below the pylorus, the duodenum was œdematous and bedded in a yellowish gelatinous mass. The small intestines showed well-marked petechiæ throughout. These areas were large and abundant.

FIG. 3.—Section of Small Intestine. Caffrey outbreak, death No. 6. Typical hæmorrhages on peritoneal surface.

There were petechiæ in the kidney substance and upon the surfaces. The bladder walls were hæmorrhagic, the mucous membrane being very much inflamed, thickened and softened. There was a small quantity of bloody fluid in the bladder. Spleen petechiæ were abundant and especially conspicuous on the inferior extremity.

Death 7.—This was a black and white heifer in fair condition, seven months old. (See Fig. 4.) This animal was first seen by Drs. Wilson and Reynolds at 2.00 P. M., November 29th. The temperature was then 98.6, the calf being out doors on a very chilly day. The respirations were very shallow but normal in frequency. The pulse was not taken. This calf stood with the back arched, shivering and apparently ready to

fall at any minute. The hair was rough; there was a slight filling at the inferior cervical region, and the eyes were sunken. The muzzle was dry.

FIG. 4.—Yearling Heifer. Caffrey outbreak, death No. 7, thirteen hours before death.

At 4.45 P. M. the calf was still out of doors, temperature 100.9; pulse 72, full, soft and fairly strong; respiration 20. The heart and lung sounds were normal so far as could be determined by auscultation.

At 7.30 P. M. the temperature was 101.1, respiration, pulse, etc., about as at 4.45. The calf was now put in the stable out of the wind, but the stable was cold.

At 10.00 P. M. she was lying on the left side with the head resting forward on the ground. The pulse was 54 and much weaker; temperature 99.9, respiration slightly irregular and somewhat jerky. The skin and underlying tissues over the body seemed very sensitive under pressure. This was especially noticeable over the abdomen. The calf had evidently failed rapidly since 7.00 P. M. The head was jerking spasmodically and unconsciously, the spasms affecting especially the cervical muscles. The pupils were dilated, muzzle dry and the neck seemed to be filling slightly at the throat.

At 3.30 A. M. the calf was dead, lying flat on the side in a

rather natural and easy position. There were noted slight rigor mortis, moderate tympanitis and somewhat blood stained fæces. The animal had died as nearly as could be estimated about 2.00 A. M. The respiration had been slightly stertorous from 7.30 P. M. to 10.00 P. M., after which the animal was not seen until found dead.

Autopsy.—There was considerable serum in the abdominal cavity and a small quantity in the pleural cavity. Both lungs were somewhat congested but showed no petechiæ. The trachea contained an abundance of frothy material and the bronchi were moderately injected. The œsophageal mucous membrane was normal. The diaphragm had few small petechiæ on pleural side. The liver showed a few small hæmorrhages on the spigelian lobe. There were a few moderate hæmorrhages on the heart surface and on the endocardium. The duodenum was in a condition very similar to that described in the post-mortem record of death No. 6. It was involved in a gelatinous mass filled with yellow serum abont ten inches from the pyloris. The ileum was injected and the mucous coat showed areas of distinct inflammation. The rectal mucous membrane was very much inflamed. Subcutaneous hæmorrhages were present, but small and not well marked. None were noticed on the inferior cervical region or on the lower portion of the limbs. The plainest and most typical hæmorrhages were on the liver, as already noted. Both the parietal peritoneum and parietal pleura showed very little that was abnormal.

There was an old wound in the abdominal wall extending into the rumen about one inch in diameter. This injury must have occurred at more than a month prior to this examination. The stomach was adherent around the border of the abdominal wound and the abdominal cavity was thus shut off.

The left humero-radial articulation showed one ulcer involving the articular cartilage about 25 mm. long, oval in shape. The left tarsal articulation showed an oval ulcer about 38 mm. long. The other articulations appeared normal.

Post pharyngeal glands were enlarged, dark and markedly

hæmorrhagic. The dura mater was moderately congested with a little serum in the canal at the atlo-axoid articulation. The bladder was normal and very much distended with normal looking urine.

The tissue lesions in this case were neither extensive nor severe, evidently a case of toxine poisoning.

Death 8.—A red heifer about 18 months old and in good condition, was first noticed sick Nov. 30th, at 7.00 A. M. She had previously been in good health so far as known. When first noticed she was bellowing occasionally and standing apart from the other cattle. She refused her morning feed and was put in the stable about half an hour later. This calf soon went down and did not rise.

At 7.30 the temperature was 99, respiration 22, pulse 14 and good. Respirations were full but somewhat stertorous. The horns were cold. Evidently the circulation was poor. Light colored fæces were passed.

At 10.30 A. M. the temperature was 97.8, having fallen 1.2 degrees during the previous three hours. Respirations were now 24 and markedly stertorous. Pulse could not be counted. The subject was failing rapidly. This case also showed the hyper-sensitive condition of the skin.

At 12 M. the temperature was 97.8, pulse was feeble and could not be counted. The respirations were still stertorous, the expiration being accompanied by spasmodic jerking of the abdominal muscles.

At 2.30 P. M. the temperature was 97, respiration about 24, and the heifer was lying stretched on the side.

At 4 P. M. the temperature was 96, respirations 24; pulse could not be counted. The heifer was groaning with each expiration. The head was very much drawn back and the body still sensitive under pressure. The animal died at 10.30 P. M.

Autopsy.—A hasty post-mortem by the owner discovered what he described as bruised areas under the skin.

Death 9.—A spotted heifer, three years old, was noticed sick on Dec. 2d, at 4.00 P. M. She died at about 5.00 P. M., having

apparently been in the best of health until shortly before she fell dead. No hæmorrhagic areas under the skin were noticed by the owner.

Bedor Outbreak.

The third outbreak which came under my observation occurred among the cattle belonging to Mr. John Bedor, living four and one-half miles east of St. Michael's Station. Mr. Bedor had lost one animal on Dec. 1st, and another on Dec. 5th, both dying very suddenly and unexpectedly. These cattle had not been in standing corn. The writer visited Mr. Bedor's place on Dec. 7th, and held examination post-mortem.

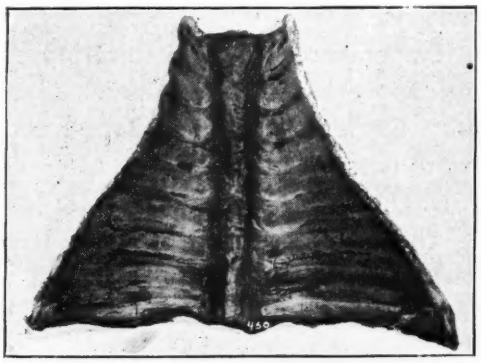


FIG. 5.—Hæmorrhages on Costal Pleura. Bedor outbreak, autopsy No. 5, death No. 2.

Autopsy.—Bedor death No. 2. Parts examined: Subcutaneous tissues, trachea, œsophagus, dura and cord, post pharyngeal glands, thoracic cavity and contents, alimentary tract, spleen, liver and portal glands, pancreas, bladder, peritoneum, inguinal glands, humero-radial and carpal articulations. All parts normal except as noted.

There was a circular hæmorrhagic area involving the muscles just below the ischial tuberosity. The trachea contained a moderate quantity of frothy fluid. Post pharyngeal glands were dark and hæmorrhagic but normal in size. The pleura showed a few small hæmorrhagic areas on the diaphragm and a few on the costal pleura, (Fig. 5). The lungs showed in one

cephalic lobe, marked interlobular emphysema, similar to that described in autopsy No. 3 (Caffrey) and in the left caudal numerous hæmorrhagic areas. On the endocardium of the right ventricle of the heart, were several fairly well-marked hæmorrhages, (Fig. 6). Bronchial and mediastinal glands were not

FIG. 6.—Hæmorrhages on Endocardium of Right Ventricle. Bedor outbreak, autopsy No. 5.

carefully examined, but were probably normal. There was one circular hæmorrhagic area on third stomach, quite typical. There were a few typical hæmorrhages, 5 to 10 mm. in diameter on capsule of liver. Duodenum and rectal mucous membrances were markedly inflamed and swollen.

Mr. Ralph Richner, a near neighbor to Mr. Bedor, reported that he had approximately 20 head of cattle in his herd November 20th. Mr. Richner lost nine, most of the animals dying very suddenly, and the entire nine within a few days after the first case, which appeared on Nov. 20th. His cattle had been fed shocked corn and other dry feed in the yard, and had not been in standing corn stalks at all. On skinning the animals and opening the carcasses, the owner had noticed that the livers

and stomachs were spotted. The intestines were not especially noticed. He would probably not have noticed any petechiæ on the intestines, even had they been present. Dark bloody spots were noted under the skin in some cases.

University Experimental Farm Outbreak.

History.—On June 6th, seven cows which had given a normal flow of milk in the morning, gave practically none in the evening. Otherwise the cows were apparently normal.

These cows were all noticed to be slightly ailing the next morning, with the exception of Dell 2. This cow was down and could not be gotten up. The others showed little except dullness. There was no rise of temperature; no evidence of pain or discomfort. When they attempted to walk, the gait was more or less irregular, resembling very much the gait of milk fever in its early stage. This became true of all cases sooner or later, and was of course more marked in some than in others.

There had been nothing new or unusual in the care or feed or other environments of these cattle except that for a few days and nights they had been kept in a pasture which had received some sewage overflow from our filter beds, by reason of recent rains. A salt-box was located near the point where this overflow stood and the cattle unquestionably drank of this water. No other cattle had been in the pasture for ten days.

Symptoms, first period.—The symptoms during the first 24 to 36 hours were not marked except as to continued dullness, staggering gait and cold extremities. The skin was harsh and lacking sensation. This loss of skin sensation began at the posterior extremities and gradually extended forward. The milk flow was completely checked, or practically so in all cases.

Second period.—After 24 to 36 hours, diarrhœa appeared; the discharge being dark and thin with very disagreeable odor. The breath in some cases was noticed to be offensive. Nervous symptoms gradually developed and were very uniform in all cases.

The symptoms during the second period were those which belong to a gradually developing nervous disturbance and were very typical of cerebro-spinal meningitis. The inability to walk naturally was continued, the gait being irregular and weak. The neck was usually bent to one side and the muscles, particularly of the face and neck, were spasmodically contracted. During this period the animals, with the exception of Countess, a large Holstein cow, were still quiet, moving around very little; but the eyes showed a wild, unnatural expression. The skin continued to lose sensation progressively forward. Countess was continually groaning, or rather grunting with each respiration; but not in evident pain. During this second period the animals commenced to chew in a nervous and very persistent manner, with more or less profuse flow of saliva.

It is also to be noted that the temperatures remained normal or subnormal during this period.

Third period.—This was one of intense activity. The eyes continued to grow more wild and unnatural; the grinding of the jaws more active and more constant; the convulsions of face and neck muscles became more intense and then gradually a period of intense restlessness and activity, and death ended the scene in every case.

Post-mortem symptoms.—Several of these animals were examined and the symptoms as seen on examination post-mortem were fairly uniform.

Meningitis involving the spinal cord or brain or both these organs was invariably present. In addition to this there were hæmorrhages involving the subcutaneous tissues, and lymphatic glands in various portions of the body; also the pleuræ, pericardium, and surfaces of various internal organs, particularly the lungs and auricles of the heart.

Evidently we had here meningitis; not the specific form of the disease but one probably due to another germ. The lesions seen on post-mortem are very suggestive of a hæmorrhagic septicæmia infection.

Diagnosis.—The veterinarians present, Drs. Lyford, Brimhall,

Annand and Reynolds agreed that the clinical symptoms and the results of examination post-mortem warranted a diagnosis of cerebro-spinal meningitis; but the hæmorrhagic conditions made it evident that we did not have the recognized specific type of the disease to deal with. (See Provisional Report on Bacteriological Examination, etc., by Dr. Wesbrook.)

Source of Infection.—Owing to the fact that this particular outbreak occurred in a certain small portion of our herd and did not spread to other cattle on the farm, we were at first inclined to suspect the water in one of our pastures. The affected lot of cattle (our milking dairy cows) had been recently turned into this pasture and a certain small pond had been contaminated by sewage overflow from our filter bed, as already noted. But the fact that a few days later a virulent case of the same disease appeared in a heifer which had not, so far as known, had access to this water but had been kept in an adjoining pasture seemed to weaken this theory. In addition to this, the further fact that an experimental cow which was given this water only, for a period of about two weeks, gave her normal flow of milk and remained in perfect health, seems to disprove the sewage water theory as to source of infection. A careful survey of the history and surrounding conditions leaves us still in the dark except as to the following incident: A sheep died about a year before of typical hæmorrhagic septicæmia. It is possible that the infection came remotely from this sheep and that the meningitis was due to germ infection, the germ of hæmorrhagic septicæmia being the exciting cause. It should be shown in further explanation that the sheep in question was buried in a field remote, considerably more than a quarter of a mile from the pastures wherein the disease appeared among cattle, although drainage is from this field toward the pastures in question. Other cattle have been kept during the interval in these pastures without harm. We do not know where the sheep received its infection. The cattle may have been infected from the same original source, or possibly there was an indirect infection from the dead sheep; but the latter theory seems very

improbable. The sheep in question developed its disease and died in the sheep barn practically surrounded by other sheep, and yet we had no other cases among sheep at that time and none since.

June 19, 1902.

Dr. M. H. Reynolds, St. Anthony Park, Minn.

DEAR DR. REYNOLDS:—Enclosed please find provisional report on the epizoötic amongst the cattle at the State Experimental Station.

Yours very truly, F. F. WESBROOK, *Director.*

(*To be continued.*)

A DISPATCH from Denver, Col., has the following: "The death of a number of horses near Loveland is ascribed to the effects of refuse from the beet sugar factory there. State Veterinarian McCapes received word last night of the death of the animals and is making an investigation into the case. He is of the opinion that the farmers are mistaken."—(*Breeder's Gazette.*)

A STORY comes from Colorado that is peculiar, to say the least of it. It seems that a great many dead horses are being found on the range in that State this fall and the cause of death is said to be the eating of sage brush last winter when feed was very scarce owing to the long-continued drouth. It is stated that the sage brush unless eaten in very large quantities does not kill the horses until the following year. Last winter there was hardly anything but the sage for the horses to eat and they apparently subsisted on it for some time. Now their dead bodies are to be found scattered all over the range. At least that is the substance of the story that comes East from several sources in Colorado.—(*Breeder's Gazette.*)

THE shire hall in the town of Oakham, Rutlandshire, England, was, and is probably now, embellished with a great number of horseshoes which, as the story goes, had been levied from travelers under this ordinance: "If any nobleman or lordship enter precinct as an homage he is to forfeit one of his horse's shoes, unless he redeem it with money." For centuries these shoes have been accumulating, so that the walls of the building were at one time covered with them. They were varied in shape and size, and many were gilt, some of them having been given by monarchs and princes; in fact, it is stated that a Duke of York once paid a silver shoe, such an impost being due from every scion of royalty who rides across that country.

RETAINED AFTERBIRTH IN COWS.

By W. L. Williams, V. S., Professor of Surgery, New York State Veterinary College, Ithaca, N. Y.

Read before the 12th Annual Meeting of the New York State Veterinary Medical Society, at Brooklyn, Sept. 9 and 10, 1902.

We cannot absolutely define, in point of time, what constitutes retention of the secundines, since what we may deem delayed expulsion in one case, may readily be regarded as perfectly normal in another, although the duration of time elapsing between parturition and expulsion of fœtal membranes be the same in each.

A heifer usually expels the fœtal envelopes more tardily than the adult cow, and the expulsion of membranes is usually more prompt where the fœtus has been carried to full term, than in case of premature birth or abortion.

Retention is therefore a relative term, and signifies a delay in the expulsion of the fœtal membranes of such a duration and character as to constitute a menace to the health of the patient. This period is usually reached in from twenty-four to forty-eight hours after calving, but danger may occur earlier, and is not infrequently delayed later.

The symptoms of retention are usually too evident to be mistaken, consisting of the protrusion of portions of the secundines from the vulva, with a variable discharge, and symptoms of local and constitutional disturbances of great diversity, according to conditions.

In some cases there is complete retention, no parts being visible, when the disease may be expressed by vulvo-vaginal discharge, or this may fail, and especially where only a small portion of the membranes remain there may be present only symptoms of septicæmia, and our attention is called to the uterus chiefly through the history of recent parturition without other evidence of disease, and suspicion is set at rest by manual exploration of the genital passages. In rare cases we meet with eversion of the uterus or vagina and with tetanus as complications.

The causes of retention of the fœtal membranes will not be fully known until the method of detachment and expulsion is understood. We do not know why birth takes place at a certain time, nor why it should be almost immediately followed or accompanied, or even preceded by expulsion of the fœtal membranes. Writers on veterinary obstetrics generally recognize two chief classes of causes for retention—inflammatory adhesion of the fœtal to the maternal placenta, and tardy involution of the uterus.

This first is largely theoretical and not well verified by clinical evidence. The possibility of such a state may well be admitted, but we find no convincing clinical record to such effect. The condition probably occurs but rarely; the cases so termed being, in our judgment, generally errors in diagnosis. The real condition being a placentitis, causing tumefaction of the maternal placenta, resulting in incarceration of the tufts of the fœtal placentæ, rendering them undetachable.

Tardy involution of the uterus, if not the prevailing cause, is certainly almost a constant condition. But we need not accept the presence of this state as the cause of retention. If we place a pack of gauze in the uterus and retain it there, the organ relaxes, becomes flacid, paretic, and it would seem that the presence of the afterbirth might also exert a retarding influence on uterine involution. In some cases we note further that clinically the involution may be fairly prompt, but a few maternal cotyledons being inflamed incarcerate and firmly retain some of the fœtal placenta.

Neither is complete uterine involution essential to expulsion of the secundines, for we not rarely see in delayed labor, the fœtal membranes detached in part or wholly, and very rarely even expelled prior to the expulsion of the fœtus. It would consequently appear that tardy involution may be rather coincidental or a parallel condition to, rather than a fundamental cause of retained fœtal envelopes, and that the real cause may be best sought in a general interruption of uterine functions, which includes involution as one of its most prominent activities.

We might compare these complex uterine functions to those taking place in the alimentary tract during the process of digestion, where muscular contraction of the walls of the digestive tube is constant, but in itself is totally inadequate to digest aliment, certain glandular and other activities being essential parts of the function.

The thought that uterine contraction suffices to detach the fœtal membranes might be accepted in some animals, but with the cow we have no knowledge of any muscular elements in the maternal cotyledons, beyond those of the blood vessels, and it is difficult to understand how the contraction of the uterine walls can affect the attachments existing between the maternal cotyledon and the fœtal placenta. At times, moreover, the contraction of the uterine walls constitutes the chief cause of the retention.

We feel warranted in concluding from the foregoing observations that uterine involution plays only a subsidiary part in the expulsion of the fœtal membranes.

The causes of tardy or incomplete involution along with general derangement of the uterine functions may be very numerous, among the most prominent of which are debility of the patient, exhausting labor, premature labor or abortion, placentitis, metritis, wounds of the uterus, overstretching of uterine walls by hydrops amnii, etc., parturient paresis.

The treatment of retained membranes should be based upon a rational understanding of the causes at work in each given case. For example, in parturient paresis it will usually suffice to pay general attention to the paresis, and upon its yielding the placenta will ordinarily be expelled.

When due to debility of the animal, tonics and stimulants are indicated, while in case of wound, metritis, placentitis, etc., where infection plays the chief rôle, effective means of disinfection are called for, and in fact we might say that the ultimate object of all plans of treatment of retained fœtal membranes is to bring about disinfection of the uterus and vagina.

Before these can be undertaken rationally, careful manual

exploration of the uterine cavity is essential. Most writers and practitioners have greatly overdrawn the repulsiveness and dangers of such examination. Properly conducted it is not very disagreeable nor highly dangerous. Before inserting the hand into the uterus with its putrid contents, the organ should be thoroughly flushed out with 5 to 10 or more gallons of a tepid disinfecting solution of, say, 1% of lysol. The operator's hands and arms should be thoroughly disinfected with a carefully selected preparation. Wounds, or abrasions on the hands or arms are always dangerous and are perhaps best guarded by cauterizing the parts, and then saturating the cautery scab with a reliable disinfectant.

Most infections probably occur through the hair follicles and sweat glands, and ordinary disinfectants do not penetrate these. We have been led to conclude by our observations that operators who sweat freely most readily become infected. Two plans for avoiding infection through the hair follicles and sweat glands suggest themselves.

Astringent antiseptics, like permanganate of potash or nitric acid, may tend to constringe or occlude the glandular openings in the skin, or disinfectants having the power of penetrating through sebum, etc., into the cutaneous glands and being deposited therein in a solid state, like an alcoholic solution of corrosive sublimate, the tincture of iodine, etc.

Examination may reveal a variety of conditions, which we may consider in three chief groups.

1. The afterbirth may be wholly detached and merely retained by contraction of the cervix or other mechanical impediment, or may be partly or wholly attached in such a manner as to allow of its ready detachment, the fœtal tufts separating easily from the maternal cotyledons, none of the fœtal papillæ remaining behind in the cotyledon when mechanical separation is properly attempted. The only handling required is the careful manual detachment of the fœtal from the maternal cotyledons, the withdrawal of the secundines from the uterus, and thorough flushing of the uterine cavity with a mild disinfectant solution.

2. The membranes may be firmly attached to the maternal cotyledons and any attempt at separation will result in wounding the maternal cotyledons, with attendant hæmorrhages, and great increase of danger of infection, or the tufts or papillæ of the fœtal cotyledons break off and remain in the maternal placenta, the latter closing over them, rendering their presence a greater menace in this condition than if the entire membranes had been left undisturbed. In the absence of fever or marked irritation, it is bad surgery to attempt manual removal. It is advisable in such cases to stimulate the uterine functions and delay putrefaction of the membranes.

A great number of drugs have been recommended to be given in such cases. Ergot has been lauded by some: probably more practitioners have favored the use of stimulants and carminatives, such as various vinous distilled and malt liquors, with ginger, fenugrec, anise, fennel, etc., etc. The value of general stimulants and carminatives in favoring expulsion is doubted by few, but the reliance to be placed in these is not equally regarded by various practitioners. Some rely on these almost wholly in nearly all cases. Injections of cold water are favored by some as stimulating uterine contraction. Injections of warm antiseptic solutions in large quantities have proven highly valuable in our hands. They arrest putrefaction of the membranes when used freely twice a day, and hasten the detachment by stimulating normal uterine functions. Internal medication as suggested above may well be combined with this method. Finally when detached treat as under No. 1.

3. Placentitis may occur within a few hours after parturition; the cotyledons are tumefied, much enlarged, firm, and the tufts of the fœtal membranes are incarcerated in the maternal cotyledons, and held as if in a vise. These incarcerated fœtal papillæ are putrefying, causing septicæmia and high fever. Such conditions brook no delay and call for the most affective disinfection possible. Tearing away the fœtal from the maternal cotyledons only adds to the danger, already great; the injection into the uterus of large volumes of disinfectants can ex-

ert but feeble influence on the disease processes going on deep within the enlarged cotyledons. As a rule the cotyledons in these cases can be detached without material hæmorrhage, and if so they should all be carefully pinched or twisted off, and the uterus flushed out with disinfectants. Fleming mentions this process as having been done by empirics. It is equally proper and salutary when done by the educated veterinarian. It corresponds in its effects to the curetting of the placenta of women. We must look upon the maternal cotyledon in this case as a vast diseased surface, in contact everywhere with the necrotic, putrefying papillæ of the fœtal placenta. If we remove the maternal cotyledon at its neck, we leave a wound area probably less than 1/1000 of the area of contact between the maternal and fœtal cotyledons and in a tissue in a state of health more capable of resisting infection. If we delay action and the animal survive, these cotyledons become necrotic, drop off and are eventually expelled. We have observed the temperature drop 3 or 4 degrees in a few hours after removal of the cotyledons and antiseptic flushing of the uterus. The operation is advised in proper cases only, where the placentæ are enlarged, firm and rapidly becoming necrotic, and accompanied by high fever. We have observed fatal hæmorrhages where such an operation was attempted by a charlatan almost immediately after calving where no action was really indicated.

To recapitulate, we meet with three chief conditions calling for as many distinct plans of handling.

A—Cases where the afterbirth is readily or completely detachable, in which it should be removed manually, and the uterus flushed out with antiseptics.

B—Cases where the afterbirth is not detachable without violence, in which cases ecbolics, carminatives, and stimulants, internally, with repeated uterine injections of warm antiseptic solutions are indicated.

C—Placentitis, in which removal of the cotyledons is to be recommended.

In all cases of prolonged manipulation, frequent injections

of large volumes of antiseptics are of the highest importance, modifying greatly the repulsiveness of the operation and reducing to the lowest degree the danger of infection both to operator and patient, facilitating the operation by washing away the debris and by stimulating uterine contractions, which serves to bring the farther parts of the uterus more readily within the operator's reach.

In addition a large volume of antiseptic solution should be kept at hand and the operator should thoroughly wash his hands and arms in this at intervals of a few minutes.

When the work is done, any fetor remaining on the operator's hands and arms is best removed by bathing in a hot solution of permanganate of potash and the stain therefrom removed by washing in a strong solution of oxalic acid. It is needless to say that the clothing to be worn during the operation should be of a character readily sterilized by boiling, and the less worn the better as far as compatible with temperature and environment.

THE *Veterinary Journal* (England) announces in its November number that its publishers will, after this year, reduce the annual subscription to twelve shillings, instead of eighteen shillings, as in the past. It will also inaugurate the unique feature of issuing a "Weekly Bulletin," gratis to readers of the *Journal*, which will contain professional advertisements, practices for sale, practices wanted, assistantships vacant, assistants wanting places, *locum tenentes*, government and service vacancies, etc.

OUR esteemed contemporary, the *Journal of Comparative Medicine*, is rapidly regaining lost ground, occasioned through the indisposition of its editor, it having published two numbers in rapid succession, with promises of the remaining delinquent issues, the September number reaching us on November 20th. Its usual monthly visits were greatly missed by its readers, and we trust that it may soon make its welcome appearance with that regularity which is essential to successful journalism.

AN actress was presented with a tiny watch, the size of a five-cent piece. She went to sleep with the time-piece in her hand. In the morning it was missing. Later, suffering great gastric pain, the X-ray was applied to her body and the watch was discovered in her stomach.

DIFFERENTIAL DIAGNOSIS BETWEEN BURSATTEE, FURUNCULUS AND FARCY.

By C. C. Lyford, M. D., V. S., Minneapolis, Minn.

Read before the 39th Annual Meeting of the American Veterinary Medical Association, Sept. 2-4, 1902.

I shall not attempt to consider the pathological differences between these diseases, as no satisfactory bacteriological or histological analysis has been completed of either bursattee or furunculus, while with farcy alone has the germ been sufficiently well demonstrated to be considered authoritative, and with which germ you no doubt are all familiar. Drs. Burk and Smith, both of India, have considered bursattee at quite a considerable length, but have not proven their convictions.

I wish more particularly to call your attention to some of the most important facts regarding their external differences, as we meet them in daily practice, so that when once seen they may be easily recognized and a diagnosis arrived at by elimination of one or more of these diseases. I also have for your consideration a clinic, consisting of several well-marked cases of these diseases, which can be seen on Friday morning at the Experimental Station, when a demonstration will be given.

Bursattee is to all appearances (especially at the outset) an epithelial disease, making its appearance on the surface of the body, involving not only the epithelial coverings of the skin, but the mucous membranes as well—generally those externally exposed—such as the organs of the eye and mouth, vulvæ in females and glands and prepuce in males. These organs are rendered more susceptible on account of the moisture which is more or less abundant around these parts. In long standing cases this disease has a tendency to and almost invariably does develop internally, affecting commonly the kidneys and liver, when the hard nodular particles known as "kunker" are to be found.

Bursattee is a warm-weather affection, being very susceptible to cold, heat and moisture. Cold weather retards its devel-

opment and ravages, consequently hastens the healing process. Heat and moisture facilitate the development and spread of this disease, while hot, dry weather is less favorable for its development (even though excessively hot) than when a considerable amount of moisture is present.

During the summer of 1901 I saw fewer well marked cases than in any year prior to this since 1880, the heat being almost unbearable, the moisture limited.

This season has been *exceptionally cool*, with rain storms more severe and often than in previous years, and while bursattee has failed to develop even to the same extent as last year, many cases which have returned regularly on previous summers have failed to make themselves known so far this year, while those which have appeared are less well marked.

I will notice here but one case, which will be presented at the clinic, to show how a rain and a hot day increases the growth and decreases your chance of healing the sore, for the time at least.

No. I.—Aug. 1st, 1902, was called to see brown gelding belonging to Day Lumber Co. Said gelding was suffering from bursattee, one sore only being apparent, though it was some 14 inches in diameter, located on crest of rump, presenting an angry, red appearance, with the usual grumous discharge mixed with blood, the animal being tied to prevent him biting the part, though he would occasionally throw himself to relieve the itching and drive off the flies. I had an application of one part of tincture of iodine to ten parts of tincture of iron, used on parts three times a day for seven days, when the horse was put to work, the sore having been reduced to 9 inches in diameter. On the 15th of August I saw the case and he was to all appearances doing nicely, though a small sore had appeared under the left eye, being about the size of a filbert. The discharge from this sore followed down the nose, so that on the 20th ult. another sore was noticable under the nose band, over lower part of nasal bone. About this time it rained for a couple of days, and the previously cool weather was somewhat warmer; the sore

accordingly took on a new growth, and the patient was sent to my infirmary for treatment. Since that time until Aug. 28th the case has done nicely, with little or no discharge, but Aug. 29th and 30th it rained and weather became much warmer, with the usual effect on bursattee sores. Aug. 31st the sore presented a mass of red flesh with slimy discharge,—elevated nodules, varying from one to three inches in diameter, studding the surface of the sore.

Furunculus and Farcy may or may not implicate the skin and mucous membranes, but often the abscesses are located subcutaneously and when broken discharge externally.

Farcy more commonly affects the lymphatic system, consequently may be superficial or deep, varying in depth from the slightest covering to one or more inches. The appearance of farcy buds is generally preceded by an œdematous swelling and pain, and increased temperature. The size of the abscess varies from a pea to several inches in diameter. The discharge is very cohesive, so that when the abscess is punctured the pus escapes like a bleb of cooling glass, carrying a long tail of adhesive pus with it, which soon breaks, and a second follows in like manner. I consider this a very distinctive and reliable characteristic of farcy, and when we have the mallein test to fall back on, there should be no hesitancy in decision—New York City official veterinarians notwithstanding.

Furunculus (carbuncle of the coronary band) makes its appearance as a rule below the fetlock, commonly affecting the coronary band, but it may appear further up the leg. If it starts below it is liable at any time to extend up the leg, inducing a slough of gangrenous nature, of the tissue involved, taking not only the skin, but subcutaneous tissue—even blood vessels, nerves and ligaments, causing open joints, and in some cases loss of the hoof. In more severe cases death may occur within 48 hours from time of its first appearance, either from septicæmia or hæmorrhage.

Furunculus is usually ushered in with a chill; temperature varies from 105° to 107°, with symptoms of extreme pain.

The swelling of the parts involved is not often excessive at the outset, but increases as the disease advances, until the skin is completely filled, as in cases of lymphangitis, consequently the foot is generally loosened at the coronary band, and the horny frog is thrown off, even though the disease proper does not involve these tissues. As a consequence, if the hoof is not given the proper care, the entire hoof will be exfoliated, leaving the sensitive laminæ unprotected. The pain is not confined to the tissue involved, for as a rule within 24 to 36 hours the tissues covering the slough are dead, and upon being removed leave a ragged sulcus varying greatly in depth; with the edges of the surrounding tissues extremely sensitive. This, as a rule, is only the beginning of what proves to be a very protracted case, and as other tissues become involved, abscesses commonly appear in adjoining structures, but more often appear higher up the affected leg, and not uncommonly a metastatic swelling appears on the other parts of the body, seldom taking a downward course, as in bursattee. Symptoms of pain are common, such as swaying back and forth in the stall, pawing, striking or kicking with the affected limb. I well remember a case I saw with Dr. McEachran, at Montreal; when we went to make the second visit found the side of the barn had a hole kicked through it, with blood-stained boards, and parts of a broken halter, were all that remained to tell us what to expect of the patient, who was afterwards found nearly a mile from the stable, dead.

The case which I have to present you at the clinic is simply one that has recovered, but still has a thickened leg with numerous scars that might easily be mistaken for the after-effects of farcy. Here again the mallein test proves its usefulness by negative results.

The serious effects of furunculus vary greatly from that of simple disfiguration to death,—or diseases which may or may not be favorable to treatment. Death generally comes from hæmorrhage or septic conditions, while quittors, loss of hoof and open joints are the common complications.

Causation.—This is a question that induces a great deal of discussion and comment.

I have noticed many articles in newspapers berating the street car system for salting the tracks to prevent snow and ice freezing to the rails. This really has no argument in fact, as I well remember the spring of 1877 in Montreal, when there was a regular epidemic of furunculus, there being upwards of 250 cases treated at the Veterinary College, and at that time no wheel street cars were run in winter, but in their stead busses on runners, and as a consequence no salt or other substance was used to keep tracks clear.

Treatment.—After several years of trials and tribulations with bursattee sores, with all forms of antiseptic dressings, styptic, caustic, counter-irritant and emolient, I have found but one remedy which I consider really valuable as a curative agent in severe cases. That is a mixture of cantharides and biniodide of mercury blister, repeated every two or three days. To prepare the sore for blister give several applications of tincture of iron just prior to blister. This stops the oozing of the surface, which would otherwise prevent action of blister. In small bursattee sores, when it is possible to remove them by enucleation, good results can sometimes be had.

Furunculus has, so far as I know, no real agent that is infallible, though my best results have been obtained by using tincture of iodine, one part, tincture of iron, five parts, applied directly to the sore, and painting parts surrounding it. I also apply strong tincture of iodine above swelling, in hopes to prevent extension up the affected limb. Internal remedies, such as sulphide and hypo-sulphide of soda, and bicromate of potash, have been given in some cases with apparently good results.

THE Kansas Live Stock Sanitary Board has issued a proclamation setting forth that Texas cattle from south of the fever line may be brought into Kansas between Nov. 1 and Dec. 31, if presented at certain points named and on inspection found free from ticks. Copies of the proclamation may be had on application to Secretary F. H. Chamberlain, Topeka, Kan.

STATISTICS AS TO THE COLOR OF SURRA VICTIMS.

By Coleman Nockolds, M. D., V. S., Vet. 1st U. S. Cavalry, Batangas, P. I.

In that admirable emergency report on "surra" gotten up by D. E. Salmon, Chief of the Bureau of Animal Industry, Bulletin No. 42, page 97, suggestion No. 3, color is spoken of as a predisposing factor. The following, taken from official records of deaths from this disease in various outfits, may prove interesting.

Date.	Animal.	Sex.	Color.	Age.	Height.	Weight.
Sept. 7, 1901	Mule	Horse	Iron gray	7	15.2 h.h.	1000 lbs.
" 30, "	"	"	Brown	9	15.3 "	1100 "
Oct 3, "	"	"	"	6	15 "	1000 "
" 8, "	"	"	"	9	16.1 "	1200 "
" 14, "	"	Mare	Black	4	15.2 "	1050 "
" 18, "	"	Horse	Bay	9	16.1 "	1300 "
" 20, "	"	Mare	Brown	9	16.1 "	1300 "
" 23, "	"	"	"	11	15.2 "	950 "
" 26, "	"	"	Black	7	15.2 "	1100 "
Nov. 6, "	"	"	Brown	7	15.3 "	1200 "
" 6, "	"	Horse	"	10	15.3 "	1200 "
" 12, "	"	"	Gray	7	15 "	1000 "
" 13, "	"	"	Brown	8	15.3 "	1200 "
" 18, "	"	Mare	"	14	15.3 "	1100 "
" 18, "	"	Horse	Black	9	15.3 "	1100 "
" 19, "	"	"	Dun	25?	15.2 "	1100 "
" 20, "	"	"	Gray	6	14.3 "	950 "
" 24, "	"	Mare	"	7	16 "	1200 "
" 28, "	"	"	Bay	9	16 "	1250 "
Dec. 2, "	"	Horse	Gray	8	15.3 "	1050 "
" 5, "	"	Mare	Bay	6	15 "	950 "
" 11, "	"	Horse	Black	8	15.2 "	1150 "
" 11, "	"	Mare	Gray	6	15.2 "	1100 "
" 12, "	"	Horse	"	9	15 "	1050 "
" 12, "	"	Mare	Black	4	15.3 "	1000 "
" 18, "	"	"	Bay	5	15 "	1000 "
" 20, "	"	"	Brown	9	15.3 "	1050 "
" 21, "	"	"	"	7	15.2 "	1050 "
" 24, "	"	Horse	White	6	15.2 "	1100 "
" 25, "	Horse	Geld.	Gray	7	15 "	1050 "
Jan. 1, 1902	Mule	Mare	Bay	7	14.2 "	1000 "

Of a train of transport animals attached to the Corps of

Engineers which I had veterinary charge of at the time that surra existed amongst them, 30 mules and 1 saddle horse died out of 34, leaving three (3) alive, which consisted of 2 grays and 1 white.

The following is a list given me by Mr. Root, who has charge of the depot corral; during the time that surra was at its worst they were directly under my supervision. Out of 582 horses and mules, those that died from surra were:

Date.	Animal.	Sex.	Hoof No.	Color.	Age.	Height.	Weight.
Aug. 1, 1901	Mule	Horse	23	Gray	6	15.2 h.h.	1000 lbs.
Oct. 5, "	Horse	Geld.	53	"	8	15.3 "	1000 "
" 8, "	Mule	Horse	56	Bay	8	15.2 "	1000 "
" 11, "	"	"	58	Brown	7	15.2 "	1000 "
Nov. 6, "	"	Mare	75	Black	9	15.3 "	1100 "
" 8, "	"	Horse	76	Brown	8	15.2 "	1000 "
" 9, "	"	Mare	78	"	8	15.2 "	1000 "
" 10, "	"	Horse	80	"	9	15.3 "	1100 "
" 14, "	"	"	83	Bay	9	15.3 "	1100 "
" 20, "	"	"	85	Brown	9	15.3 "	1100 "
Dec. 1, "	"	Mare	87	Bay	7	15.3 "	1000 "
" 1, "	"	"	88	"	7	15.2 "	1000 "
" 2, "	"	Horse	89	"	8	15.2 "	1000 "
Jan. 10, 1902	"	Mare	110	Gray	7	15.3 "	1100 "
" 25, "	Mule	Horse	123	Brown	9	15.3 "	1100 "
Feb. 2, "	Horse	Geld.	132	"	9	15.1 "	1000 "
" 2, "	Mule	Mare	134	Gray	8	15.2 "	1100 "
" 15, "	"	"	136	Brown	8	15.1 "	1000 "
" 20, "	"	"	178	"	8	15.1 "	1000 "
Mar. 1, "	"	"	197	"	8	15.1 "	1000 "
July 16, "	Horse	Geld.	286	Black	9	16 "	1100 "

Of the 582 animals in the depot corral 40 were of light color; either gray, iron gray, dun or white (sorrels not counted).

In the quartermaster's corral, 1st Cavalry, the wagon train consisted of 25 horses and 11 mules, of which 1 brown mule died of surra. There were 2 roans and 6 grays in the train.

The pack train numbered 40 mules and 20 horses, of which 1 brown mule died of surra; there were 2 duns and 9 grays in the train.

The following troops of 1st Cavalry averaged 85 animals each, of which 1 gray and 1 bay died from surra:

Troops "A," bays; "B," bays; "C," blacks; "D," grays; "I," light bays; "L," brown; "M," sorrels.

In the quartermaster's corral at Calumba, the following colored animals died of surra, after a number (30 I believe) had been killed on the recommendation of a board sent down from Manila to prevent the spread of glanders. This was before surra had been discovered in Manila.

Animal.	Sex.	Color.	Age.
Mule	Horse	Black	12
"	Mare	Brown	7
"	Horse	Gray	5
"	"	Brown	8
"	Mare	"	8
"	Horse	Gray	8
"	"	Brown	6
"	"	Gray	6
"	"	Brown	8
"	"	Black	6
"	"	Bay	7
"	Mare	Gray	8
"	Horse	Brown	6
"	"	Gray	9
"	"	Buckskin	6
"	"	Bay	4
"	"	Black	7
"	"	Buckskin Zebra	10
"	Mare	Buckskin Zebra	6

In Tannan, a post near Calumba, 13 dark colored and one gray mule and one bay horse died from surra.

The above was furnished by the veterinarian sent to Calumba and Tannan to take charge of the sick animals at these posts.

About the same proportion, both as regards color and numbers, died at many posts near points where 1st Cavalry troops were stationed and which I visited.

It has always been evident that mules are more susceptible to surra than horses; that light-colored animals are attacked

more frequently, in proportion, than dark colored. The same is true of animals that are not provided with shelter at night. It is also quite certain that surra is confined to certain localities; for instance, I believe that no surra has occurred at this post except in cases where the animals were brought in with the disease, as none of the animals that have been permanently here have died from it, although mixing in some instances freely with surra-infected animals. A short distance from here, at and near Santa Cruz, immense numbers have died from surra, in some cases whole troops, 100 per cent. of the animals in a troop. A telegram to the Adjutant-General of this brigade was referred to me this week, which requested permission to destroy 17 of 18 remaining animals of a troop of 9th Cavalry, because they were suffering with surra. It may be that there are not the right kind of flies to distribute surra at certain posts, as it is quite certain that animals at those posts do not take it, even though they sometimes are closely associated with animals from other posts, and which are undoubtedly affected with the disease.

As to whether surra is a native of this country or not, from the conversation of intelligent natives, one of whom has been practicing as a veterinary surgeon at Batangas for twelve years and seems to be pretty well informed, having several very good works on the veterinary art (in Spanish), I gather that surra was unknown to them until about two years ago. They recognize simple œdema and several other diseases likely to be mistaken for surra, but are convinced that surra is a new arrival in these islands.

Surra does not appear to be prevalent in many coast towns. For instance, at Balayan, Taal, Limeray and Buaun, no cases have been seen either among troopers or transport animals, except one horse that was brought to Buaun by an officer from the 5th Cavalry. This horse developed a well-marked case and died, and although for a long time amongst the horses of "K" troop, none of them took it. The 6th Cavalry while stationed at Taal and Limeray, fed dried pea-vine and no green grass, and no surra was observed amongst them while there.

During the fall of 1901 I was commanded by General Sumner to send in a report on surra, and on my advice Lingard's treatment was adopted (Circular No. 2), Headquarters, 3d Separate Brigade, Department of North Philippines. Although I believe some animals did derive benefit from being treated with Fowler's Solution combined with iron and quinine, the cases were few and far between; after an animal was returned to duty often a relapse occurred. Arsenious acid, hypodermic injections of Fowler's Solution, solution of mercuric chloride, potassium iodide and mercuric chloride, and quinine, were all thoroughly tried in turn, but without any brilliant results. The treatment of surra up to the present, has been eminently unsatisfactory. Iron and quinine will cause an animal to pick up for a time; better and quicker than other medications that I have tried. Of course good food and shelter are necessary, or no treatment would be of avail.

"PERMIT me to congratulate you for the splendid manner in which the REVIEW is bringing scientific veterinary literature to the front."—(*J. P. Turner, V. S., Washington, D. C.*)

DR. J. B. PAIGE'S ELECTION TO THE MASSACHUSETTS LEGISLATURE.—Prof. Paige, of Amherst, gets the largest majority of any of the candidates in Hampshire county, only four less than 600. He proved an acceptable candidate, and will be a valuable legislator, as he has the faculty of doing business with his fellow men without any useless words or forms. Few men ever connected with the Agricultural College have so splendidly united the faculty of imparting information to the students and the ability to do the ordinary business of life with ease, speed and economy, as Prof. Paige. He will get better acquainted with the manner of doing business in the legislature in the first three weeks than the average new legislator would in a whole session. In securing legislation favorable to the Agricultural College he can be of little service, as that institution has seemed to be able to get about all it wanted, but as a help to doing the business of the state expeditiously and sensibly he will be a positive force. It needs more men to go to Boston, impressed in advance with the notion that less words, less law, less change, less special legislation is an absolute essential for Massachusetts suremacy as the leader of the states.—(*Hampshire Gazette, Nov. 5.*)

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

FRACTURE BY MUSCULAR CONTRACTION.

By T. S. CHILDS, V. S., Saratoga Springs, New York.

I was called to see the race-horse Dr. Hughes, owned by Senator P. H. McCarren and trained by Frank Brown, on August 14th, 1902. I found on my arrival a grand big good looking two-year-old colt, about 16 hands high, and would weigh over 1100. He was hopping around on three legs; could just barely touch the toe of the off fore-foot to the ground.

History.—The horse had been in training all spring and summer, and had always done all that was asked of him, showing great speed, and was in splended physical condition. He was a Futurity candidate, and as a preparatory conditioner he was entered in this race to-day. He was in a good position in his race, and was running strong and with a regular stride, when all at once he stumbled and fell, injuring his rider so badly that it was found necessary to take him to the Saratoga Hospital, where he lay unconscious for several days and then died.

On *examination* I found a small abrasion on the upper third of the back part of the forearm; just as if struck by the toe of the forefoot of another horse—as if he had been jumped on, but I was assured by Mr. Brown that such could not have been the case, as he had the field-glass on him from the start until he fell, and that there was no horse near enough to him to do so at the time.

Diagnosis.—I made a diagnosis of fracture of the ulnar, in all likelihood due to muscular contraction. The animal was removed to the Saratoga Veterinary Hospital, where he was kept until Sept. 10th, when he was doing very nicely. He did not like to stay in slings, so was let down.

At 2.30 A. M. on the 11th, he became cast, and in getting up he refractured the ulnar. So at 7 o'clock A. M. he was destroyed. I have the ulnar, showing an oblique fracture, involving the articulation to a slight degree.

I may add that this is the first case of fracture due to muscular contraction that has ever come under my personal observation.

STRINGHALT.

By HENRY TWEEDLEY, M. R. C. V. S., Buffalo, N. Y.

In the *Recueil de Médecine Veterinaire*, 1887, I find the following remarks concerning section of the lateral extensor of the phalanges for stringhalt, the reading of which has caused me to add my experience of this operation:

"In certain cases, section of the lateral extensor of the phalanges gives favorable results. Introduced by Boccar, and repeated successfully by Delnart, Bragnier, Palat, and Guittes, this operation does not merit the neglect into which it has fallen. The operation is extremely easy to perform. Having located the position of the tendon, the section is made towards the middle of the distance comprised between its point of junction with the anterior extensor of the phalanges and the bend of the hock. A clean incision of the skin made in the direction of the hair brings the tendon to view; it suffices to raise and cut it above and below at a distance of one to two centimetres. The operation is completed by a suitable dressing. Suture is to be avoided."

Reading the above has induced me to bring forward a case upon which the operation seemed to be completely successful.

The subject, an eight-year-old saddle gelding, was as badly affected with stringhalt as one might see. I was repeatedly asked if I could do anything for him, and, not liking to confess my inability, relying on this operation, I answered in the affirmative; but, being little sanguine of results, I was in no hurry to begin.

Being in the stable one day, I was unable to get out of it, and was forced to try what I could do. I made the incision as above indicated between the bend of the hock and the point where the tendon of the lateral extensor of the phalanges joins the anterior extensor, inserted a curved bistoury and cut the tendon (one incision). I bandaged the wound, and afterwards gave very little attention to the case, as I did not look for any very special result, the operation besides being performed without any special preparation and under disadvantageous circumstances.

To my astonishment, such an improvement occurred that one could scarcely detect any stringhalt, although previously it was an extremely bad case.

At the present day, five years since the operation, the horse is driving every day in the streets of Buffalo practically cured of the stringhalt, at times only a very slight appearance being seen on one limb. No one who reads this can be more surprised

at the result than I was. It certainly is worthy of trial in severe cases of stringhalt, although to my mind it is hard to see from an anatomical specimen how this tendon or muscle can have so much to do in flexing the hock. If in this case section of the tendon did not induce the result then it must have been a case of spontaneous cure.

PROLAPSUS OF THE VAGINA IN BITCHES.*

By ROSCOE R. BELL, D. V. S., Brooklyn, N. Y.

Prolapse of the vagina in bitches is very much more common than the same condition of the uterus; in fact, Georg Muller, in his work "Diseases of the Dog," does not believe that the uterus ever becomes wholly prolapsed. He mentions that one horn may pass out of the vulvar opening, but claims that it would be an anatomical impossibility for both cornuæ to do so. The body of an unimpregnated uterus is a very small organ, it being but a very short chamber from which the horns bifurcate before it assumes much size. The vagina, however, is comparatively large, with flabby, dilatable walls, which in the excitement of œstrum become thickened by congestion, and is easily prolapsed. This is particularly the case with certain breeds, notably the St. Bernard, which is quite apt to become in this condition with the first heat; which, however, usually returns without interference, upon the subsidence of the function, not to again reappear until the next rutting period. It is not so easily gotten rid of the second time. It is larger, and hangs out persistently, becomes crusted and hardened. The mucous membrane loses its soft, delicate appearance and feel, and becomes dry and harsh, and sometimes cracks. The surgeon called in at this time, has the organ fomented with warm antiseptics, lubricated with olive oil, and after some little difficulty returns the enlargement back into the vaginal cavity, straightening out the folds of the membrane, permitting the fingers to remain in position for a varying length of time. Upon releasing pressure, and giving the animal its liberty, he gets his reward by observing the tumor reappear in a short time. He then adopts mechanical means to retain it, and selects one of several methods that suggest themselves. One of the more common ways is to pack the vagina with sponges or gauze and take a couple of stitches in the vulva, allowing them to remain in for 48 to 60 hours, which is sometimes successful, but in the majority of cases the removal of the sutures is a signal for a

* Read before the November Meeting of the Veterinary Medical Association of New York County.

new prolapse. Or the surgeon decides upon simple suturing without the insertion of a retaining pessary, which is less likely to be effective. I have tried the method of inserting a rubber bulb into the body of the uterus, having a tube leading out of the vulva. By dilating the bulb with air and tying the end of the tube which hangs from the vulva the organ would remain *in situ* if the animal would permit it; but she invariably bites off the tube, permitting the air to escape, the bulb to collapse, and prolapsus to occur more readily than if the foreign body were not present. Every other means failing, he at last advises the owner to have the organ amputated, which is more or less successful.

A month or two ago such a case was brought to our attention, and we decided to perform ovariotomy, removing at the same time a large section of the horns, believing that when the attachment of the horns to the broad ligament were severed the remaining stumps and the body of the uterus would fall to the floor of the abdomen, thus dragging back into position the prolapsed vagina, and as the genital excitement would at once subside upon the cessation of œstrum the congestion of the organ would disappear and the walls would shrivel. Upon this hypothesis my assistant, Dr. Shaw, and myself undertook the operation through the left flank, using strict antiseptic measures, but without anæsthetics, it being our experience that more deaths occur in dogs from their use than from the effects of such operations. After drawing the left cornua through the incision it was removed with a small emasculator, the stump returned, and then the right one was treated in a like manner, the incision being closed by two sets of interrupted catgut sutures, one in the abdominal muscles, the other in the skin. The next morning the tumor was shriveled to half its former size, and by the following day it had disappeared, and in four days the patient was virtually well, the wound healing by first intention. The bitch was returned to the owner at the end of one week. I have seen her many times since, and she has never had a return of the trouble and in my judgment never will.

This experience has decided my course in the future, for I have had experience with many such cases, where the prolapsus would become permanent after the second occurrence. It would appear that the removal of the horns, or a portion of them, is preferable to amputation of the uterus, since the weight of the released organ is more conducive to a return of the vagina to its normal portion.

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By ADOLPH EICHHORN, D. V. S., Bureau of Animal Industry, Milwaukee, Wis.

RESULTS IN THE TREATMENT OF TETANUS WITH BRAIN EMULSION [*Dr. J. Fiebiger*].—Following the results of the experiments of Wassermann and Takaki, by which brain and spinal cord substance in emulsion have a bounding action on tetanus toxins, Schindelka, Reisinger, and the author, have tried the brain emulsion in treating horses affected with tetanus. For preparation of the emulsion, was used at first, the brain of rabbits, later from sheep, which are more susceptible to tetanus. Brain and medulla, mixed with a physiological salt solution, are very finely ground in a mortar, after which the emulsion is filtered through gauze, and squeezed. The injection was made subcutaneously on both sides of the neck, with Paltauf's infusion apparatus. As a rule, a half liter of the emulsion was used. In all, during the time of 15 months, 25 cases of tetanus came under observation, of which 20 were treated with brain emulsion. Of the injected horses, 8 died; those not treated, all succumbed. The total of deaths therefore were 13=52%, against the usual death rate, which is 80%. In every case search was made for the place of infection, and the same treated with antiseptics. In the same way, special care was taken in nourishing the patient, in case of strong trismus, liquid food (flour gruel, milk with eggs, up to 8 liters a day) was administered with the irrigator. Medicines were not given, except Glauber salt, in cases where there was want of peristalsis. The appearance of abscesses at the place of injection was very troublesome, which in most cases caused considerable disturbance in the general condition of the animals, and prolonged the recovery. The course, in the cases where the injection was applied, generally manifested itself with more marked symptoms in the first few days; gradually they lost in severity, and slowly, after a few weeks, complete recovery took place. Other experiments must prove whether the diminishing of the death rate was due to chance, in the application of the emulsion therapy. By all means, this method of treatment is as successful as other methods applied, is cheaper than the serum therapy, and the material is easier obtainable. This method can also be easily applied in every-day practice.—(*Zeitsche. f. Thiermed.*)

THE THERAPEUTICAL APPLICATION OF FORMALDEHYD IN SOLID FORM [*F. Glage*]. — With the addition of 2–20 volume per cent. of formaldehyd, the colostral milk of cows coagulates to a uniform solid mass; according to the quantity added, the stiffness is brought on in from 10 minutes to 24 hours. The resultant stiffness can be perceived from the fact that by inclining the vessel, the surface of the milk will not remain horizontal. A collection of milk serum does not take place. For the production, only the colostral milk of a few days after birth is suitable. Less than two volume per cent. does not have the effect. The author generally takes 10 per cent. The formaldehyd-colostral milk keeps for at least four years, so far do the observations of the author extend. The mass can be easily broken, at the same time is of such a firmness that with a knife, wide, thin pieces can be sliced off. After removal from the vessel, the mixture is sliced to pieces—as bread, which are then dried until hard. The slices are then grayish, hard, and keep for years. From the slices a powder is easily rasped; this work is disagreeable for the produced formaldehyd gas. Both forms, the dry and the moist preparate, are very adaptable in the treatment of wounds. Especially the moist preparate is of very great value in cases where there is a durable, energetic, and deep disinfection needed.—(*Deutsch. Thier. Wochenschr.*) [Veterinarians in the country ought not to have any difficulty in making this very highly recommended cheap remedy.—(*A. E.*).]

THE RESORPTION OF FAT AND SOAP IN THE SMALL INTESTINES [*Prof. Dr. Gmeiner*].—The question whether fat before its resorption in the small intestines undergoes chemical processes or solely changes physically and is resorbed as an emulsion, has been recently considerably argued. To decide this question, Gmeiner studied the resorption of fat and soap in the small intestines, under the influence of mustard oil. It was found that the addition of mustard oil checks the resorption of soap solutions, while the resorption of fat emulsion is considerably promoted. Therefore, it is very probable that fat is taken up as such, and before its resorption does not undergo splitting into soap.—(*Zeitschr. f. Thierm.*)

THE RELATION OF PEARL DISEASE (BOVINE TUBERCULOSIS) TO HUMAN TUBERCULOSIS [*Dr. Max. Wolf*].—The autopsy on a man in Leyden's clinic, showed with completely healthy lungs, tubercular nodules of the intestines, and miliary tubercles of the peritoneum and spleen. From the spleen a guinea-pig was in-

oculated, which died after eight weeks, of tuberculosis. From this again a calf was inoculated, which did not react to a tuberculin test, and this calf developed pearl disease. Author concludes from this, that he succeeded in proving a case of pearl disease in man. On the other hand, he did not succeed in producing general pearl disease in another calf with the sputum of phthisic persons. In the discussion, Stadelmann remarked that he can conclude from Wolf's results that he only succeeded in transmitting human tuberculosis to an animal. W. replied that R. Koch stated that human tuberculosis is not transmissible to cattle, and by the positive results of the experiments it must be accepted that the described case was *pearl disease transmitted to man.*—(*Therapeut. Mon. hefte.*)

BELGIAN REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

AVIARY DIPHTHERIA—EXPERIMENTAL STUDY—VACCINATION—SEROTHERAPY [*M. C. Guérin, of Pasteur Institute at Lille*].—Aviary diphtheria has been already the object of numerous investigations, and yet for the author a supplementary study was necessary. Upon the insistance of a distinguished breeder, this study was undertaken, and, although much difficulty was met in obtaining the proper material to make post-mortems and discover the microbic cause of all the trouble, this was, however, finally discovered, viz., a microbe which, in first culture, killed pigeon or fowl, and did not give rise to any effect in second culture, even in very large doses. Among its characters this microbe presents the peculiarity that it does not grow on natural acid potato, consequently cannot belong to the group of *Pasteurella* of Ligniéres, as it is mobile, nor to that of the *Salmonella*, hog-cholera type. Its best media to grow in is a mixture of fresh peptonized bouillon with horse serum, in the proportion of 8 to 1. A number of experiments made for its general study, and to establish the pathogeny to which it may give rise, have brought the author to the consideration of vaccination, one of the most important of the disease. His experiments seem to have been quite satisfactory, having obtained 15 successes out of 20 on one occasion, 75 out of 77 on another, and promising similar results in one other instance, where 165 chickens were treated. The subject of serotherapy

has also been considered by Mr. Guérin, and from the general consideration of his works he arrives at the following conclusions: 1st. Of all poultry-yard animals, *pigeons* are the most sensitive to aviary diphtheria; in him the virulency of the microbe increases and becomes fixed by successive passages. 2d. Experimental transmission of aviary diphtheria may be easily realized with pigeons, not only by inoculation, but also by injection of virulent products, in which on first plane must be placed the dejections of the sick ones. 3d. A solid active immunity can be conferred to animals liable to the disease by the inoculation of attenuated virus in the peritoneum. Made under the skin, those injections are effective. 4th. An antimicrobic preventive serum of great efficacy can be obtained from horses, which will confer to animals subject to the disease an active immunity by *sero-vaccination.*—(*Annales de Bruxelles.*)

Chronic Diaphragmatic Hernia in the Horse [*H. Zwaenepoel*].—Accidental diaphragmatic hernia of the horse has been often described in veterinary publications, but seldom has the diagnosis been made during life. In some cases the animal dies almost instantaneously, in others the symptoms have nothing characteristic, and in others again the ring is so large that death is not imminent or that the presence of the organs in ectopic interferes but little with the respiratory function. Such is the case in chronic hernia, where at first sight the diagnosis seems to be easy, auscultation and percussion permitting of the detection of the presence of the displaced organs. Still it is not always so, and there are cases where the trouble is not made out or even suspected. The case recorded by the author proves it. A horse had colics which were accompanied by such manifestations that his death was expected to soon take place. The next day he seems somewhat relieved; twenty-four hours later there is a return of the same trouble—dull pains, pulse 110, great dullness. Eserine and pilocarpine are given. During the night, fetid diarrhœa sets in, animal tries to take food, some improvement; yet, temperature is 39.7°, pulse 64, respiration accelerated; percussion is very painful; auscultation reveals pneumonia on the left side, no respiration on the right. The next day matity has subsided on the right, but remains on the left. Gangrene of the lungs is manifested by the fetid breath. For a few days the treatment is continued and the general condition improves. Still the colics were present; the abdomen much retracted; the thoracic matity re-

mained alternatively uni-or bilateral, but always higher on the left side. Twice borborigmus was detected on the right side. Finally, after being a month under treatment, the horse was destroyed. At the post-mortem the lesions of pneumonia were found in the left lung, the right was sound. An opening through the fleshy portion of the diaphragm, and measuring 30 centimetres in height and 40 in width, had allowed the passage into the thoracic cavity of the stomach, a portion of the duodenum, the spleen, great omentum, with several circumvolutions of the intestines. These were lodged in the right pleural cavity by perforation of the median mediastinum. After reviewing and explaining the various manifestations of his patient, the author, taking all the symptoms into consideration, calls special attention to the borborigmus, the retracted condition of the abdomen, and the excessive soreness of the chest during percussion, which, with auscultation, ought to be repeated before, during and after meals.—(*Annales de Bruxelles*).

PURULENT COLLECTION AND TYMPANITES OF A GUTTURAL POUCH [*M. Conreur*].—An outbreak of distemper occurred among broodmares and colts, and ten of the mares took the disease, recovered and had their colts. None of them took the disease. When weaning time came, one youngster was somewhat sickly; he eat little oats, but drank much milk. Soon he began to roar, and a swelling made its appearance on the right parotid region. This condition rapidly grew worse, and a diagnosis of distemper with abscesses of the retropharyngeal lymphatic gland and swelling of the subglossals. After four days the parotid has increased, and tympanitis is detected by percussion over it. The treatment consisted in puncture of the guttural pouch (method of Dieterichs, viz., incision of the skin and subcutaneous cellular tissue on a level with the inferior third of the wing of the atlas, isolation of the parotid gland, division of the subparotid cellulo-aponeurotic fascia, which unites the mastoido-humeralis to the sterno-maxillaris, and puncture of the pouch in the angle formed by the external carotid and the occipital artery). The pouch contained fetid gas and concreted pus. The whole was washed with phenic solution. Everything went well, when it was observed that the fluid of the injection thrown into the pouch did not escape through the nose. The Eustachian tube was plugged up. A grooved probe was then introduced into the guttural pouch, directed towards and pushed into the Eustachian tube, which was enlarged with a narrow-bladed bistoury. After this the washing of the cavity went on

perfectly and in a few days recovery was complete.—(*Annales de Bruxelles.*)

INSUFFLATION OF AIR IN THE RECTUM IN SOME FORMS OF COLICS [*M. Hermans*].—Blowing air into a depressed hollow organ has a tendency to make it resume its primitive form, and if it is a tortuous canal, enclosed in a cavity, there is a tendency, for some parts of this canal, to resume their normal relations. The author then thought that this insufflation could be used in some cases of colic, those due to changes of position. He had the occasion to try it with success in a two-months-and-a-half-old colt, which had colic since 36 hours, and resisted saline purgatives and repeated injections. With the hand pump used for bicyclute adapted on the body of an injection syringe, he threw air into the rectum, and when the insufflation was thought sufficient, the animal was exercised. After an hour defecation took place, and the colic ceased. For the author it is evident that this last treatment assisted recovery very much.—(*Annales de Bruxelles.*)

ITALIAN REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

PATHOLOGIC IMPORTANCE OF THE LARVÆ GASTROPHILE IN THE STOMACH OF HORSES [*Prof. F. Perroncito*].—When these larvæ, yet very small, arrive in the stomach, they introduce in the epithelium of the mucous membrane their mandibules, and by the two mandibular hooks, which develop later on, remain firmly attached to the gastric wall. They ordinarily penetrate the sub-mucous tissue by their cephalic ring, giving rise to the slough of the epithelium and to the formation of a cavity with raised and convex borders. But they may go deeper, as far as the fifth or sixth ring, filling completely the space due to the loss of substance produced by their gradual development. The diameter of the cavity then varies between that of a simple prick to that of a large solution, more or less rounded. The bottom, formed by the sub-mucous tissue, is the seat of an inflammatory process, and the alteration may gradually involve the whole thickness of the stomachal wall. The irritating action of the mandibular hooks and of the little prickles of their rings spreads upon a more or less wide range, even beyond the mucous dermis. When it reaches the first layer of the muscular layer, the connective

tissue proliferates and the wall of the stomach becomes thicker. Some preparations show diffused inflammation between the muscular fibres, which are disassociated, separated. The connective tissue of neoformation presses upon the muscular fibres and gradually atrophy them until complete disparition. In other points, the connective neoformations reach even the external muscular layer, which becomes also atrophied, and then all the tissue that forms the bottom of the ulceration is formed of neoplastic tissue, which becomes fibrous, hard and cicatricial. The peritoneum corresponding to these points is also often the seat of a special inflammatory process, which results in villous neoformations, isolated or not, visible to the naked eye on the external face of the organ. In a portion of the stomach, the wall was changed into a hard surface, which, under the microscope, was found infiltrated with calcareous salts spread in the sub-mucous tissue and the glandular layer as far as the destroyed muscular coat. Horses which carry larvæ of gastrophile are more predisposed to infectious diseases, as the pathogenous microbes can penetrate easily by the numerous wounds or ulcerations due to the presence of the parasites. It has also been remarked that influenza kills many horses affected with gastrophilosis, that typhus counts also many victims in those having the *Gastrophilus intestinalis*, that purulent or fibrinous pneumonias terminate in general fatally, when they probably result of inoculations by the solutions of continuity of the stomach. It may be the same for anthrax.—(*Giornale della R. Acad. de Med. di Torino.*)

RARE CASE OF MEASLES IN DOG [*M. Gambarotta*].—If records are not missing of cases of measles observed in dogs, characterized as in pigs by the presence of the *Cysticercus cellulosæ* in the tissues and particularly muscles, the following is rather rare by the severity and the extent of the infection. The dog presented the symptoms of a nervous affection difficult to diagnose: dullness, stupid appearance, immobility; the head was carried to the left and elevated; there were frequent closing and opening of the left eye; the right lateral biped carried closer to the centre of gravity, hence unsteady equilibrium. In walking the animal moves to the left, in circles. He has shiverings, epileptiform convulsions; the skin becomes less and less sensitive; mastication and deglutition at first difficult, become impossible. The animal dies of starvation. At the autopsy the case was shown to be one of extensive measles. All the muscles of the trunk and of the extremities were stuffed with cys-

ticerci ; they were in the pleura, in the pericardium, in the peritoneum. The heart and other organs were free, with the exception of the brain, which was invaded by a large number of those parasites, some of which were even in the spinal arachnoid.—(*Vet. di Campag. Rev. Vet.*)

A CASE OF OCULAR PARASITES IN A DOG [*Dr. Pietro Ghisleni*].—This interesting case is published as a contribution to the literature on the subject, which seems to be without similar observation. A dog, about seven years old, had received a gunshot wound in the right eye, which, although recovered, left him with deficient sight, there being a large cicatrix on the cornea. This cicatrix was on the lower half of the cornea and oval in shape. The opacity of the cornea was complete at that point, but gradually disappeared towards the circumference. There was anterior synechia, the crystalline lens completely opaque and dislocated forward. The convexity of the cornea was less marked than on the left eye. As there was no chance for treatment, the dog was destroyed. On examination of the eye, when by an incision the cornea was opened, a small quantity of sero-bloody fluid escaped with a small worm, white in color, round in form, measuring 4 mm. in length, and moving actively. Examined by Prof. Andres, it proved to be a larva of *pulex serraticeps*, which is frequent in carnivora.— *Clin. Veter.*)

CLINICAL CONTRIBUTION TO THE ETIOLOGY OF FACIAL PARALYSIS [*Dr. Giovani Gambarotta*].—Facial paralysis is a morbid trouble which, although frequent, has causes at times difficult to make out, and if those may be found of central origin, as recorded by Prof. Bossi, Thomassen, Goubaux and others, they are also frequently of peripheric origin, such as bruises, accidental wounds or traumas of the nerve, pressure by pathologic neoformation on the course of the facial nerve. In relation with this, the author relates two cases where paralysis was due to traumatic influence due to a large buckle of the bridle which had interfered with the action of the nerve in one horse on the left and in another on the right side ; and also that of another, which had received a heavy blow from the falling of a wooden bar on the right side of the head. In one case recovery followed the application of a light blister, another submitted to treatment was lost sight of, the third was condemned to be destroyed on account of his emaciated condition.—(*Il Nuovo Ercolani.*)

RADICAL CURE OF VENTRAL AND UMBILICAL HERNIAS IN

COLTS [*Prof. Angelo Baldoni*].—The various modes of treatment resorted to in ventral and umbilical hernias present more or less objection, and, notwithstanding the success which has been obtained with the opening of the sac, reduction of the hernia, resection and sutures of the ring, or, again, the reduction and suture without opening of the sac as in recent hernia, or, again, the closing and support of the ring by the overlapping of the abdominal walls as recommended by Parascandolo; or, again, any other means improved upon by others, accidents and principally the return of the hernia, has often been observed. The author has then decided to resort to the *modus operandi* used at the clinic of the Milan School, which he has modified, and consists in applying upon the base of the sac a strong metallic pin (*slecca*), after this has been pulled out as much as possible, closing the ring well with strong suture and the cutaneous wound sown over it. By this mode of treatment he has obtained the recovery of a large congenital ventral hernia on the median line of the abdomen, of a congenital umbilical hernia, and of a large ventral hernia of the left hypochondriac region. In all of these three cases radical recovery with complete closing of the wound occurred in a comparatively short time, about 30 days.—(*Clinica Veterin.*)

SMALL TUMORS OF FILARIA IN THE ABDOMINAL CAVITY OF BOVINES [*Dr. E. Garino*].—The author has had opportunity in examining the peritoneum of bovines, especially on the posterior face of the diaphragm, small neoformations, flat, of various forms and diameter, which by their aspect and color might at first sight be taken for small tuberculous deposits. But in the majority of cases they were found to contain a filaform body, white, more or less twisted in spirals, surrounded by a tissue of slightly rosy color, a few millimeters in thickness. The superficy of these little growths had a circomvular aspect, which might be compared to that of the brain. In some cases the central little body was not very visible. Varying in number, the tumors, either single or again in numbers, were found on the serous covering of the diaphragm, especially on the muscular portion; sometimes, however, on the aponeurotic, on the costal arch, and in a few instances on the renal capsule. In relation to the frequency of their presence, they have been observed in over 100 animals, in bulls, steers, or cows; they have not been detected in suckling calves. No extensive lesions of the peritoneum were found on their attachment, scarcely a slight alteration of a zone slightly opaque round the neoforma-

tion. Evidently their presence did not give rise to any great disturbance. In examining the filiform white body which was found in most of them, in various shapes, it proved to be a worm of the filaria species, and having succeeded in extracting one complete it was recognized as *Filaria labiato papillosa* (*Filaria Cervina* of Dujardin). Considering the harmless nature of this parasite, Dr. Garino expresses the opinion that these tumors are but a manifestation of one period of life of those animals, and that their encystment is probably only a means of nature to relieve an organism of their presence.—(*Clin. Veterin.*)

CORRESPONDENCE.

CAN ANY READERS SUPPLY THESE NEEDS?

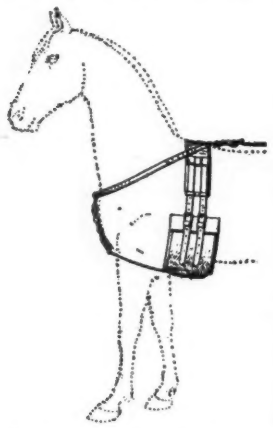
CANCER LABORATORY, UNIVERSITY OF BUFFALO,
BUFFALO, N. Y., Nov. 13, 1902.

Editors American Veterinary Review:

DEAR SIRS:—Could you by any means put us in the way of getting cancerous dogs, cats, or rats, or even a larger animal? We are particularly desirous of getting a cancerous dog.

Yours truly, H. R. GAYLORD.

PAD FOR TREATING SHOE BOILS.—Patent granted September 9, 1902, to Robert H. Musgrave, New York City. This invention relates particularly to a means for protecting and compressing shoe boils which frequently occur in the fore arms of horses immediately below the shoulders, so that upon the application of proper remedies the boil may be reduced and finally removed. The invention comprises generally a pad or pads, formed comparatively thick, so when placed against the side of the horse's body immediately behind the fore leg, the front portion will lie directly against the shoe boil which provides a protector for the boil when the horse lies down. The pad takes the weight of the horse and preventing pressure from being applied to the boil and also preventing contact of the hoof and shoe with the boil.— *Horse-Shoers' Journal.*)



SOCIETY MEETINGS.

PASSAIC COUNTY VETERINARY MEDICAL ASSOCIATION.

The regular monthly meeting of the Passaic County Veterinary Medical Association was held at Dr. William Herbert Lowe's office, corner of Paterson and Van Houten Streets, Paterson, N. J., on Tuesday evening, September 16, 1902, at 8 o'clock, with President Lowe in the chair.

On roll-call the following members answered to their names: Drs. William J. Reagan, John H. DeGraw, William C. Ferguson, T. J. Cooper, Alexander Machan, William H. H. Doty, W. H. Lowe, Jr., M. A. Pierce, William Herbert Lowe, Paterson; Anthony P. Lubach, Passaic.

The minutes of the last meeting were read by the Secretary, and, on motion of Dr. Cooper, were duly approved.

Upon request of members President Lowe, as delegate to the American Veterinary Medical Association, gave at some length a report of the great veterinary convention held at Minneapolis, Minn., September 2, 3, 4 and 5, 1902.

The President also gave a report of the meeting of the New York State Veterinary Medical Society held in Brooklyn, N. Y., Sept. 9th and 10th, 1902.

Dr. Ferguson, Chairman; Drs. Doty and Regan, Committee on Constitution, By-Laws and Code of Ethics, presented a report that was concise and comprehensive.

Upon motion of Dr. Pierce, the report was received and its recommendations taken up section by section. With slight amendments the constitution, by-laws and code of ethics were adopted as recommended by the Committee.

Upon motion of Dr. Cooper, it was ordered that the Constitution By-Laws and Code of Ethics be printed.

Upon motion of Dr. Lowe, Jr., the bill of the Guardian Printing and Publishing Company for stationery and printing, amounting to $9.75, was ordered paid.

Several matters of local interest to the profession were discussed and meeting adjourned at 11 P. M.

The regular monthly meeting of the Passaic County Veterinary Medical Association was held at 169 Paterson Street, Paterson, N. J., on Tuesday evening, October 7, 1902, with Dr. William Herbert Lowe, President, in the chair.

The following members were present: Drs. William J. Reagan, Paterson; John Kehoe, Passaic; T. J. Cooper, Paterson; William J. Fredericks, Delawanna; H. K. Berry, Paterson; M. A. Pierce, Paterson; J. Payne Lowe, Passaic; William Herbert Lowe, Paterson.

Dr. H. K. Berry was chosen Secretary *pro tem.*

The minutes of the previous meeting were read and approved.

Treasurer M. A. Pierce reported that he had received $16 from Secretary Machan; had paid the Guardian Printing and Publishing Company's bill of $9.75 for printing, leaving a balance of $6.25. The Treasurer's report was ordered entered upon the minutes.

President Lowe reported that Dr. Brooks had returned from his vacation and had made application for membership. The President stated that Dr. Brooks stood for the advancement of the profession in every way and was proud of the fact that the movement to organize a local society had the unanimous support of the veterinary practitioners of Passaic county. Dr. Brooks received the unanimous vote of all present, and he was declared a member of the Association.

The President reported that he had ordered a bill of the Guardian Printing and Publishing Company of $9.75 paid. This bill was for printing the Constitution, By-Laws and Code of Ethics of the Association.

Under Article 9 of the By-Laws the following proposition was presented to the meeting and carried by a unanimous vote:

"In view of the earnest and successful efforts of Senator Wood McKee in the halls of the State Legislature at Trenton last winter, which resulted in the enactment of Chapter 18, Laws of 1902, 'An Act to Regulate the Practice of Veterinary Medicine, Surgery and Dentistry in the State of New Jersey, to License Veterinarians and to Punish Persons Violating the Provisions thereof.'

"Therefore we, members of the Passaic County Veterinary Medical Association, do hereby propose the Hon. Wood McKee for honorary membership in this Association.

"Signed William Herbert Lowe,
"W. J. Reagan,
"William J. Fredericks."

President Lowe declared Senator Wood McKee an honorary member.

Dr. Fredericks moved that the President be authorized to have certificates of membership printed. Carried.

Moved by Dr. Kehoe and seconded by Dr. Cooper that an invitation be extended to the veterinarians of Bergen county to attend our meetings. Carried.

The members listened with much interest to the reading of an excellent paper on professional etiquette by Dr. J. Payne Lowe, of Passaic.* Dr. Lowe's paper was received, discussed and ordered placed on file.

A vote of thanks was extended to the Doctor for the care he had exercised in the preparation of his paper.

Dr. Cooper was appointed essayist for the next meeting, his subject being "The Transmission of Disease Through Milk."

Meeting adjourned at 10.45 P. M.

The regular monthly meeting of the Passaic County Veterinary Medical Association was held at 169 Paterson Street, Paterson, N. J., on Tuesday evening, November 4, 1902, with Dr. William Herbert Lowe, President, in the chair, and Dr. Alexander Machan, Secretary.

Notwithstanding the fact that it was election night there was a quorum in attendance, the following practitioners being present: Drs. T. J. Cooper, David Machan, Alexander Machan, John H. DeGraw, W. H. Lowe, Jr., William Herbert Lowe, Paterson; J. Payne Lowe, Passaic.

The minutes of October 7th were read and approved.

Under "unfinished" business the President reported that he had ordered certificates of membership, which would be ready in the course of a few days.

Secretary A. Machan reported that he had up to date made two payments to Treasurer M. A. Pierce, the first amount being $16 and the second $10, making a total of $26, paid over to the Treasurer. The Secretary further reported that he had $2 in hand just paid him by one of the members and that all members had paid their dues for this year except four, who were not present when he was collecting dues. Dr. Machan also reported that he had sent invitations to Bergen county practitioners as instructed by the Association at the last meeting. The Secretary's report was received and ordered entered upon the minutes.

Treasurer M. A. Pierce not being present, there was no report from that officer.

President Lowe announced that he had had some correspondence with the State Board of Health as to whether veterinarians could have the use of the State Bacteriological Labora-

* Published in November REVIEW.

tory at Trenton, for diagnostic purposes, and he was pleased to be able to give a favorable report, and he hoped that veterinarians would avail themselves of the services of the State Laboratory. Dr. Lowe stated that the work at the State Laboratory is conducted free of charge and that it consists in examinations for diagnosis in the various affections which are produced by micro-organisms. Communicable diseases of whatever character are investigated, and a diagnosis is made when possible. Investigations of a private nature will not be undertaken at the laboratory, and veterinarians are requested not to send sections of tumors, etc., to the laboratory, as no examinations will be made of such substances, the work of the laboratory being wholly devoted to the public health interests of the State. Inquiries will be made into the character and purity of the animal products in use in this State for prophylactic and remedial purposes, and also concerning the causes of wholesale poisoning due to unwholesome food, and into the germicidal value of the various substances employed in sanitary operations. Specimens of tissues suspected to be affected with rabies, anthrax, glanders and other diseases peculiar to the lower animals can be forwarded in the manner described in Circular 105 of the State Board of Health, issued August, 1902. The ordinary mailing cases for the other diseases named in the said circular can be obtained in Paterson at the office of the Board of Health, or at the drug store of Gurdon E. Pellett, corner of Park Avenue and Carroll Street. Dr. Lowe mentioned that Dr. Cooper had already availed himself of the use of the State Laboratory by taking a portion of the brain of a horse supposed to have hydrophobia to Trenton for diagnostic purposes, and Dr. Cooper explained why in this case he expected the result would be negative.

The President stated that he had not been able to attend the annual meeting of the New Jersey Sanitary Association at Lakewood, October 24th and 25th, and make the report of the Committee on Animal Diseases and Animal Foods of that organization, of which committee he is chairman.

Dr. Cooper brought up his blacklist proposition again, and on motion of Dr. Alexander Machan, it was laid over until the next meeting.

Dr. Pope telephoned his regrets at not being able to be present.

Dr. William C. Berry, formerly of Bloomingdale, now of Haskell, wrote a letter showing his deep interest in the Association.

Dr. Cooper, who had been appointed essayist for the meeting, read an excellent paper on "Milk as a Conveyor of Disease." The subject being an important one, it was fully discussed. Dr. Machan moved that a vote of thanks be given Dr. Cooper, and that his paper be sent to the REVIEW and to the *Journal* for publication. Carried.

The President appointed Mr. David Machan essayist for the December meeting, subject "Examination of Horses for Soundness."

On motion meeting adjourned at 10 P. M.

A. MACHAN, *Secretary.*

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The November meeting of this association was called to order on Wednesday evening, Nov. 5, at 8.30, by President Ellis. As Dr. Clayton, the Secretary, was unavoidably absent, Dr. Bell was asked to act in his stead. There were present Drs. Amling, Bowers, O'Shea, Ryder, McCully, Robertson, Schroeder, Keller, Bell, Ellis, Cattanach, Hayes, Fink, and a large number of the students of the New York-American Veterinary College.

Dr. Roscoe R. Bell presented a case report entitled, "Prolapsus of the Vagina in Bitches." * It had reference to the reduction of this condition by removing a portion of the uterine horns and the ovaries, the uterus and stumps of the cornua dropping to the floor of the abdomen, which would retract the protruding organ. It was thoroughly discussed by Drs. Ellis, Ryder, Robertson, Bowers and others, the discussion including the consideration of prolapsus in other domestic animals.

Dr. James L. Robertson then brought forward a case which he had seen a day or two previously. It was that of a horse suffering with congestion of the lungs, and having the unusual symptom of hyperæsthesia of the left side, the animal continually biting at that part of its body.

He also spoke of the great prevalence of glanders in New York City, and indulged in some remarks relative to the attitude of the Board of Health with regard to contagious diseases of animals. The discussion of this subject was very general and animated, Drs. Keller, Ryder, Bowers, Cattanach, Ellis, and Bell taking part. Dr. Keller exhibited postal cards which the

* Published elsewhere in this number of the REVIEW.

Health Board supplies to veterinarians, making it very easy and convenient for them to report all cases.

The meeting adjourned at about 11 o'clock.

WISCONSIN SOCIETY OF VETERINARY GRADUATES.

Met at the Kirby House, Milwaukee, Sept. 11, 1902, at 7.30 P. M., and was called to order by the President, and the following members answered to roll-call: S. Beattie, H. P. Clute, C. M. Crane, C. E. Evans, H. F. Eckert, R. S. Heer, J. T. Hernsheim, E. L. Morgenroth, J. T. Roub and S. S. Snyder. Visitors present—Drs. W. T. Schwiesum and T. A. Schneekloth. The minutes of the last meeting were read and approved.

The President re-appointed Dr. H. P. Clute on Committee of Legislation, as his term had expired.

The Revisionary Committee came under discussion and was dismissed by the Chair.

Dr. Clute on behalf of Mrs. Stater and Ormond extended thanks to the Society for their kind remembrance of the late Dr. C. H. Ormond.

Dr. Eckert reported some very interesting experiences with rabies, in which there were six persons infected, all taking the Pasteur treatment successfully.

Applicants for membership were taken and the following gentlemen were received: Dr. W. T. Schwiesum, Ripon, Wis., and Dr. T. A. Schneekloth, Lodi, Wis. The censors reported favorably and the gentlemen were unanimously elected.

On motion, the Secretary was instructed to call a meeting of the Legislative Committee at Madison in October to frame a bill for the next Legislature, the railway expenses of this committee to be paid by the Society.

On motion, the Society adjourned to meet in Madison subject to call of the President and Secretary.

S. BEATTIE, *Secretary.*

ALLEGHENY COUNTY VETERINARY MEDICAL ASSOCIATION.

A very interesting and instructive meeting was held at Dr. Spindler's office on the evening of Nov. 12th. Members present: Drs. Birch, Boyd, Emery, Hinman, Spindler, Spohn, Taylor and Waugh. Visitors: Drs. A. T. Roll, of Natrona, and Wm. J. Waugh, of Washington. Routine business was tran-

sacted and committees were appointed for future work, and plans formulated to enlarge the association and increase its sphere of usefulness, then occasionally hold surgical clinics.

Dr. James A. Waugh exhibited Dr. Rectenwald's new steel clamp for removing collar tumors and shoe-boils; explained its application and uses, and showed a large shoe-boil as removed that day in his practice.

Dr. A. W. Hinman made some practical remarks on observations on subnormal temperatures in animals.

Hair-balls in calves' stomachs proved an interesting subject, when Dr. James A. Waugh presented seventeen different sized and multi-colored balls received from his friend, Dr. Benj. Howse, U. S. Veterinary Inspector in Allegheny.

Dr. John E. Spindler gave an original and unique lecture on "Greasing a Mit," which dealt freely and fully with the baneful practice of tipping coachmen and whacking up with stable bosses.

Dr. James A. Waugh mentioned an improvement in the surgical technique of Prof. C. C. Lyford's operation for the radical cure of bursal enlargements.

There was free and friendly discussion of all those subjects presented for consideration. Members are exchanging text-books, and manifest much interest in advancement, and a professional spirit prevails.

JAMES A. WAUGH, V. S., *Secretary.*

PROF. VERANUS A. MOORE, of Cornell University, has consented to address the Veterinary Medical Association of New Jersey on the occasion of its forthcoming annual meeting at Trenton, on Thursday, January 8, 1903, on "Etiology and Prevention of Infectious Diseases of Animals," illustrated by the stereopticon. An illustrated talk on such an important subject to the practicing veterinarian by such a distinguished comparative pathologist and bacteriologist as Professor Moore will in itself be an important feature of the annual meeting of the Veterinary Medical Association of New Jersey. We predict that the attendance will be large at this meeting, not only by New Jersey practitioners, but by veterinarians from neighboring states. Dr. Harker, of Trenton, President Wm. Herbert Lowe and Secretary George W. Pope are already at work arranging and perfecting plans for the coming great State Veterinary Convention at the Capital City of New Jersey.

PRESIDENT WM. HERBERT LOWE announces that the State Board of Veterinary Medical Examiners of New Jersey will be in session at the State House, Trenton, N. J., the two days following the meeting of the State Association (Jan. 9th and 10th, 1903) for the examination of candidates for license to practice veterinary medicine, surgery and dentistry in that state. Veterinarians intending applying for license to practice in New Jersey will do well to make application to the President or Secretary of the Board at an early date.

NEWS AND ITEMS.

THE family of Dr. James A. Waugh, of Pittsburgh, Pa., are in Oklahoma Territory for the benefit of Mrs. Waugh's health.

DR. ROBERT DICKSON, of New York, made a trip to England and Ireland in October, returning to New York about the 15th ult.

DR. S. R. HOWARD, of Hillsboro, Ohio, contributed a valuable illustrated continued article to the *Rural New Yorker* during October.

NEIL B. JONES, V. S., of Washington C. H., Ohio, has sold his practice, his brother James, of the same place, having also disposed of his practice and removed to Athens, Ohio.

THE NEW YORK-AMERICAN VETERINARY COLLEGE has a class of 60 students this year, a considerable increase over the past six or seven years.

DR. GEORGE ING SMITH, of Lexington, Mo., was married, Oct. 29, to Miss Birchie Dunkley Smith, daughter of Mr. Henry Strong Smith, of Dunksburg, Mo.

ACCORDING to the latest official returns there are in Austria proper, not including Hungary, a total of 9,506,626 cattle, 2,621,026 sheep, 1,015,682 goats and 4,682,734 swine.

GREAT BRITAIN, during the seven months from January 1 to July 31, imported from the United States only 5,724 horses against 14,820 for the same time in 1901.

DR. GELSTON, veterinarian U. S. Army, Fort Assinaboine, Montana, is taking a special course at the New York State Veterinary College.

VETERINARIAN WM. H. PENDRY, of Brooklyn, N. Y., who represented the twentieth Assembly district of Kings County in the last Legislature, and who was renominated by the Republicans of that district, suffered defeat at the late election.

"I VERY HIGHLY ESTEEM THE AMERICAN VETERINARY REVIEW, and cannot get along without its aid and valuable information."—(*D. F. Bowersox, V. S., Aaronsburg, Pa.*)

DR. DON C. AYER, Chief of Inspection, B. A. I., at Omaha, Neb., spent his vacation in the East, and made a pleasant call upon the editor of the REVIEW.

TEN important buyers being interviewed at the Union Stock Yards, Chicago, all agreed that draft horses with weight and quality never were as scarce nor as high in price as now.

DR. D. E. SALMON, Chief of the Bureau of Annual Industry, has been in Europe this fall in the interest of his department.

DR. R. W. HICKMAN, Chief of the Miscellaneous Division of the Bureau of Animal Industry, was in the West during November in the interests of his department.

TWO deaths occurred near St. Paul, Minnesota, from glanders. The subjects were farmers, brothers, and the disease was contracted from a glandered horse. They were each sick seventeen days.—(*Iowa Health Bulletin.*)

DR. G. E. NESOM, State Veterinarian of South Carolina, has forwarded us a small pamphlet containing the State law authorizing and regulating the inspection of animals affected with contagious diseases.

TO PROTECT itself from the rain the orang outang crooks its arms over its head. The hair of the orang's upper arm points downward, while on the lower arm it points upward, the apparent purpose being to shed the rain like a thatch.

DR. JAMES A. WAUGH, of Pittsburgh, Pa., writes that Prof. Joseph Hughes' observation that "neurectomy almost invariably results unfavorably in mules," is confirmed by recent terminations in his practice.

DR. L. VAN ES, of Mobile, Ala., has accepted the chair of veterinary science at the North Dakota Agricultural College, Fargo, N. D., and mail matter intended for the doctor after Dec. 25 should be addressed to his new station.

THE departure of Dr. L. Van Es for his new post at the North Dakota Agricultural College, will leave a good opening for some worthy veterinarian at Mobile, Ala. The latter has enjoyed a good practice there for the past eight years.

"HEATHERBLOOM," the sensational high-jumper owned by Mr. Howard Willets, of New York, established a new world's record at the recent Chicago Horse Show, by clearing the rail at 7 feet 8 inches.

WE have received the report of the Government Entomologist for the year 1901 for the Cape of Good Hope, containing a great deal of information upon both the parasites of animals and vegetables, profusely illustrated with original drawings and photographs.

DRS. WM. SHEPPARD, Thomas G. Sherwood, and J. Elmer Ryder were the official veterinarians of the recent National Horse Show at Madison Square Garden, New York, the most successful exhibition of high-class equines ever held in the world.

THE premium of 1000 marks offered by Germany for the proof of trichinosis from eating American pork has stood for two years without a claimant.

ENLARGEMENTS upon the heads of cattle are not always actinomycotic. In a case where 56 head of cattle presenting actinomycotic symptoms were slaughtered, eight cases were found to be tuberculosis of the cervical lymphatic glands.—(*G. A. Lytle, M. D. C., in Quarterly Bulletin of the Chicago Veterinary College.*)

DRS. HAYNE & SON, Jackson, Mich., write under date of Nov. 7: "We are having plenty of experience with tetanus, hog cholera, and milk fever. We are much pleased with our treatment of tetanus." Will our correspondents kindly furnish REVIEW readers with the methods they employ in treating this fatal malady, as a system of treatment which "pleases" the practitioner has been long sought.

FOR GOITRE IN DOGS, try desiccated thyroids in about 5 grain doses or thyroidin in ½ to 1, gradually increased to 2 grains, 3 times daily. Puppies should receive proportionate doses. The above can be administered with the food. For local treatment use iodine ointment for adult dogs and ointment of potassium iodide for puppies.—(*E. L. Quitman, M. D. C., in Quarterly Bulletin of Chicago Veterinary College.*)

DR. J. G. RUTHERFORD, Chief Veterinarian of the Dominion of Canada, and First Vice-President of the A. V. M. A., who extended such a cordial invitation to the Association to meet in Ottawa in 1903, is following up his proposition by portraying the great advantages Ottawa possesses through personal letters to the members. The REVIEW believes that much good would flow to the Association and the profession of Canada by holding a meeting at the Capital of the Canucks.

MRS. WM. H. HARBAUGH, Fairmount, Richmond, Va., writes to the REVIEW that the hospital occupied by her late

husband, who was one of the leading practitioners of the South, is for rent or for sale. There are three or four veterinarians in that place, but Richmond is now a large city of possibly 100,000 inhabitants and quite a horse centre, and the right man, she thinks, could build up a lucrative business.

DR. WALTER REED, U. S. A., who made the famous medical discovery that the yellow fever germ is transmitted by mosquitoes, died at the General Hospital, Washington Barracks, Nov. 23, after an operation for appendicitis. He was fifty-one years of age, and a native of Virginia, having been educated at the University of Virginia, Medical Department, and at Bellevue Hospital Medical College, New York.

HEADLINES from the New York *Herald* of Nov. 17: "Raced with Death in Blazing Motor—Leaning Far Out in Runaway Automobile Two Men Fought for Time—Machine All Aflame Startled Eighth Avenue—Gasoline Tank was On Fire and Lever was Stuck at Full Speed—Sped for Fourteen Blocks—Then Collapsed a Total Wreck—Owner Uninjured, but Chauffeur was Slightly Burned." On the same page this one: "Raced Two Miles in Blazing Automobile."

IT is understood that since the return of Dr. D. E. Salmon, of the Bureau of Animal Industry, Washington, D. C., from Europe he has prepared a report advocating the use of forced draft for the ventilation of cattle stalls and quarters on board ship. He made the trip across the ocean on a cattle steamer, and though his report has not yet been made public it is said to be known that he will advocate the system of forced draft that will do away with some of the funnels on deck and at the same time grant more air to the animals.—(*Breeder's Gazette.*)

DR. W. T. MONSARRAT, of Honolulu, H. I., who was in attendance upon the Minneapolis meeting of the A. V. M. A., reached home Oct. 1. After reading the REVIEW'S story of the meeting he wrote: "The congratulations of the veterinary profession are due you for the October number of the REVIEW. It is a masterpiece, and should be a great pride to you. You do not know how I enjoyed it, especially after being among so many of the profession at Minneapolis."

STATE VETERINARIAN TAIT BUTLER, of North Carolina, contributes an article to *The Progressive Farmer*, of Oct. 28, published at Raleigh, on "How to Exterminate Cattle Tick." He takes as his text the resolutions passed by the meeting of State Veterinarians of the Southern States, held at Atlanta, Ga., Oct. 8, 1902, and then gives some very important and

practical points to his readers, who are principally farmers and stockmen. He says that North Carolina is accomplishing more than any other Southern State in her efforts to exterminate the cattle tick, and fully explains the methods employed by him.

DR. CHARLES H. ZINK, who has been filling the position of Inspector in Charge of the B. A. I. work at Buffalo, N. Y., for the past four years, has been transferred to Forth Worth, Texas, for similar duties. Dr. B. P. Wende, of the Buffalo B. A. I. force, has been promoted to the position to succeed Dr. Zink. Dr. Wende is one of the oldest inspectors in the B. A. I. employ, and his many friends will be pleased to hear of his well deserved promotion.

UNTIL recently an opinion has prevailed among veterinarians that tuberculosis in hogs rarely assumes a localized form, that is, it was believed to become so rapidly disseminated that the slightest trace of tubercular deposits was considered sufficient grounds for condemning the carcass. In a recent series of carefully conducted post-mortem examinations made upon a large number of hogs in 50 per cent. of all cases of tuberculosis found, the visible lesions were confined to the lymphatic glands of the head and cervical region, and in 75 per cent. to the lymphatic glands of the head, cervical region and digestive tract.—(*G. A. Lytle, M. D. C., in Quarterly Bulletin of the Chicago Veterinary College.*)

TO MASK CASTOR OIL.—Dr. N. V. Obrastzor, according to the *Province médicale* for October 11th, finds the following preparation masks the flavor of castor oil, with the additional advantage that it exercises an intestinal antiseptic action: ℞ Castor oil, 30 grammes (1 ounce); menthol, 0.50 gramme (7½ grains); tincture of iodine, 10 drops. M. A dessertspoonful for a dose. Before administering this mixture, it is a good plan to make it tepid in a water bath, to dispel the viscosity which is, of itself, such a disagreeable feature of castor oil to invalids. The dose of menthol may appear large, but it must be borne in mind that this drug becomes dissolved in the oil, and is thus in great part eliminated by the intestine.

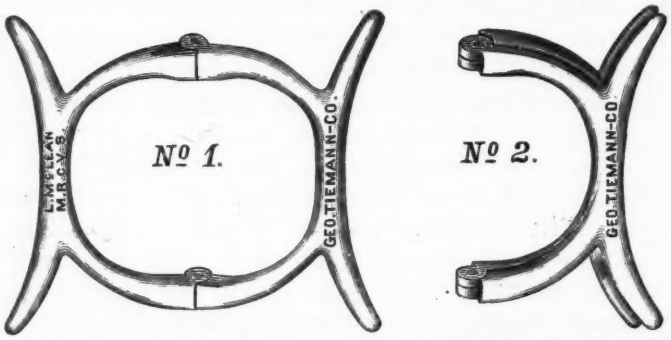
ANDREW MURRAY, of Brooklyn, N. Y., who occupies the position of superintendent and veterinarian to the stables of one of the large dry goods houses of that city, according to the New York *Herald*, removed a cancer from the base of his own tongue with an ordinary scalpel, after eminent surgeons had informed him that he would have to undergo a very skilful operation if

his life was to be saved. The paper relates how he stood in front of a mirror and heroically dissected out the extensive growth, the victim remarking to the reporter the following day that he never felt better in his life. This story will make a good running-mate to the one published some time ago about the "vet" who removed a section of a horse's lung, the animal resuming his accustomed work in a few days, without exhibiting any evidences of the operation. Why can't the lay press print the truth?

THE RESULT OF A BLOW.—If Nicolo Bonnano ever recovers from the effects of a blow which he says Antonio Bolento hit him with his fist, he will need two guesses to tell just what really happened. Bolento's blow landed on his mouth. The result is clearly and tersely told in the certificate issued by Dr. Enrico Scima, of No. 53 Stanton street, who was the attending physician. The certificate reads: "I certify that I had visited Bonnano, fifty years old, and had found in him several lesions superficial of the skin in the nose and in the face and echimosis into the same parties; also asportation of the incisive tooth and luxation of other two teeth in the interior dental series with lesion of the soft parties of the gum. This lesion is curable completely in seven days with doubt of the debility of the luxatio teeth."—(*New York World, Nov. 11.*) [How is it that the authorities permit such an ignoramus to practice? It is impossible that he can have a diploma.]

KOCH'S DEFENSE OF HIS VIEWS ON THE TRANSMISSION OF ANIMAL TUBERCULOSIS TO MAN.—At the Congress of Tuberculosis, held recently in Berlin, Professor Koch replied to the strictures which have been passed on all sides upon his thesis of the nontransmissibility of animal tuberculosis to man. One of his arguments in relation to tuberculous milk and meat, however, strikes us as being singularly lacking in perspicacity. Professor Koch is reported to have pointed out that, when poisoned meat is eaten in a community widespread effects follow; and to have asked why no general infection follows the eating of tuberculous meat or the drinking of milk from a tuberculous cow. Surely, the fact that in the case of poisonous meat the immediateness and simultaneity of the effects at once direct the physician's attention to the search for a common source, while, in the case of tuberculous milk or meat, the effects are insidious in their onset, and do not fulminate with that *éclat* that marks the other condition, is sufficient answer to Dr. Koch's question.—(*New York Medical Journal.*)

A NEW MOUTH SPECULUM AND BALLING-IRON.—Dr. Lachlan M'Lean, of Brooklyn, N. Y., one of the oldest active practitioners in this country, whose diploma from the Royal College of Veterinary Surgeons (Edinburgh) bears date of the early fifties (we believe 1851), has devised a very practical and convenient mouth speculum and balling-iron, which is shown in the accompanying drawing. The special advantage



of this instrument is that it can be carried in the hand-bag or pocket, particularly for night calls, where it not infrequently happens that a patient suffering from colic will not open the mouth sufficiently wide to administer a bolus. Those who give chloral in capsule form will find it especially safe, for shoulp the capsule slip from the fingers on account of the large amount of saliva usually contained in the mouth during attacks of flatulent colic, it can be readily secured without being crushed between the teeth, with the usual resultant stomatitis. It is often difficult to administer chloral in a drench while the patient is suffering acute pain—the capsule being much more practical.

THE USE OF ANÆSTHETICS IN SURGERY.—The *British Medical Journal* for October 25th, in an article on the "Discovery of Anæsthesia" concludes as follows: "Long was one of the pioneers of the use of anæsthetics in surgery, but there were many others. The chief among them are accurately classified in a little pamphlet privately printed for Professor Stirling, of Manchester, 'in honor of the Victoria Dental Hospital, September 30th, 1902, and in memory of September 30th and October 16th, 1846, Boston, U. S. A.' Professor Stirling sums up the history of the discovery of anæsthesia in the following table:

Nitrous Oxide.

Joseph Priestley 1776

Humphrey Davy. 1800
Horace Wells [Collyer, Colton, Riggs, Evans, Best] . . 1844

Sulphuric Ether.

M. Faraday (?) 1818
W. T. G. Morton [On Himself and on Eben H. Frost] . 1846

. 'Before Whom, in all time, Surgery was Agony,
Since Whom Science has control of Pain.'

J. C. Warren [On Gilbert Abbott, 20, painter, single] . 1846

[Wilhite, Long, Jackson, Hayward, Bigelow, Boot, Robinson, Liston, Buchanan, Louget, John Snow, Simpson, Bernard, Clover.]

Chloroform.

James Young Simpson 1847

'I'll imitate the pities of old Surgeons
To this lost limb—who 'ere they show their art,
Cast me asleep, then cut the diseas'd part.'

T. Middleton, 'Women Beware Women,' iv, I, 1657.

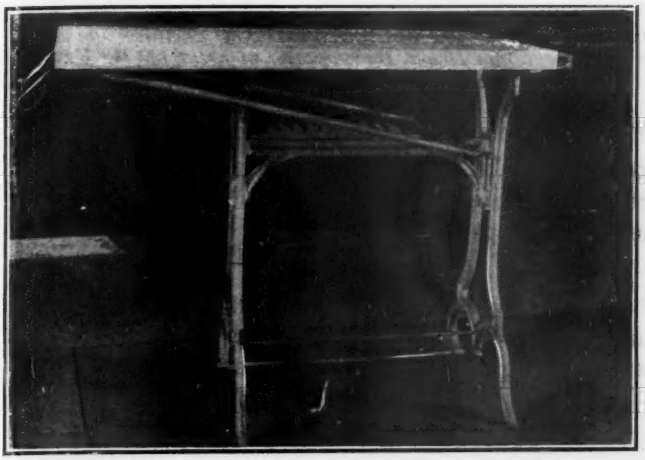
[Guthrie, Soubeiran, Liebig (1831), Dumas (1834), Waldie, Flourens, G. Keith, M. Duncan, Snow, Nunneley, James Arnott.]

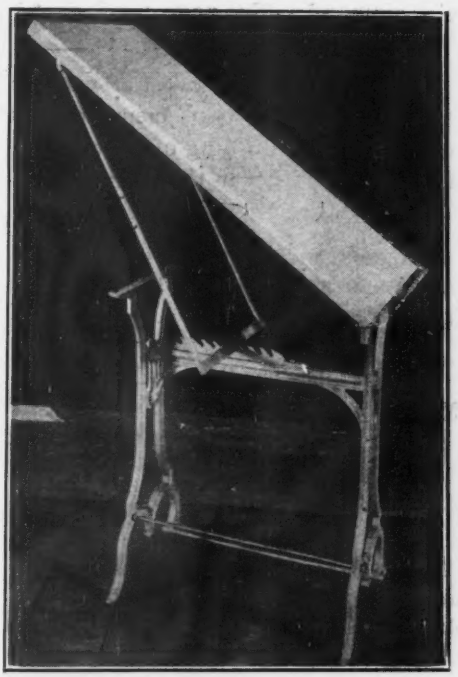
"After judicial weighing of the evidence and careful allotment to each pioneer of his due, the scientific world must, we think, agree with Oliver Wendell Holmes that 'this priceless gift to humanity went forth from the operating theatre of the Massachusetts General Hospital, and the man to whom the world owes it is Dr. William Thomas Green Morton.'"

SECRETARY JOHN J. REPP'S IMPRESSIONS OF THE 39TH MEETING OF THE A. V. M. A.—The official records show an attendance of about one hundred and twenty-five members, which is somewhat in excess of the Atlantic City meeting; so, in point of numbers, the Minneapolis meeting was a success. The papers and discussions were fully up to the standard of past performances. It should be the ambition of all the members to have presented to the meetings papers of high merit, and to keep the discussions free from irrelevant and worthless matter. We should aim to make the printed proceedings of the highest possible merit, for the Association, and in turn the profession, will be judged largely by the character of the printed proceedings of the annual meetings. The members were not prompt in getting into the convention hall so that the meetings might begin on schedule time. The entire time of the meeting provided for by the programme could easily be utilized in attending to the business and presenting the literary part of the programme. When we get behind time everyone gets nervous, and many do not enter into the discussion because of lack of time. The forenoon session of the first day was abandoned because a large number of members were delayed in their arrival owing to the lateness of the train. I am sure that

these members, as well as others who did not suffer the misfortune of such an annoying delay, have fully resolved that on subsequent occasions they will leave home at a time sufficiently in advance of the meeting to permit of their arrival in due time, even if their train is several hours behind time. This is a praiseworthy resolve. The sessions of the Executive Committee, held during the meeting, are usually extended considerably beyond the time set for opening the convention, and in this way the whole convention body is kept from beginning its work. These delays could be prevented if the Executive Committee would, whenever possible, hold its sessions in the evening, or, if it must have a morning session, by beginning on time and adjourning at the time scheduled for opening the session of the convention. This is a reform that is much needed. The abolition of smoking in the convention hall during the sessions of our Minneapolis meeting was a very commendable act, and one which is doubtless approved by the smokers themselves. The convention halls used for some of our recent meetings have not been as well adapted for the purpose as is desirable. The success of the meeting depends largely upon the kind of hall we have. The members will not remain in a disagreeable place, and visitors will not venture into it. It would be better, if necessary, to pay a moderate sum for the proper kind of room than to accept an undesirable one free of cost. The committee-in-charge should, at future meetings, make sure to obtain a suitable hall. The usual hotel parlor or ordinary is in most cases undesirable. The room should be remote from street or other noises, should be well ventilated and cool, lighted from *both* sides or overhead, and not from in front or behind, and be large enough. Better that it should be too large than too small. If possible, the place of entrance should be from the centre behind and not from one corner, for it is well known that, if the entrance is at one corner, people will crowd about the entrance and will not move over to the far side, even if there are vacant seats there. Our meetings are becoming better every year, and if each member will begin as soon as one meeting is over to make plans whereby he can enhance the excellence of the next one, we will be assured of a rapid and healthy growth of our organization. With a membership of over five hundred active workers there is no reason why the American Veterinary Medical Association should not take high rank among the scientific bodies of America. It should be our aim to see that it does.—(*Journ. Comp. Med.*)

A CANINE OPERATING TABLE MADE FROM A SEWING MACHINE STAND.—Dr. W. E. Clemons, Granville, Ohio, sends us photos of his improvised canine operating table, which is neat, efficient, and clean. In the note accompanying the photos, the doctor says: "You can easily see that it is made from an old sewing machine stand, the iron parts of which are painted with aluminum paint, with the top of white enamel. The photo does not show the rings at the corners for tying the dog. I find it very convenient for all manner of operations, particularly ovariotomy, where the animal can be placed in any desired positions; also, for the removal of mammary tumors, or any other procedure, where the thorough securing of the patient is desirable. It looks well, and can be made aseptic by washing. The cost of it is very small, and those who care to duplicate it are quite welcome to do so." [NOTE.—A firm in New York have been making a table very similar to the one shown here, but little better.]





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GLYCO-HEROIN (Smith) is fast taking its place as one of the permanent remedial agents in the veterinarian's office, and those who have not yet employed it have not availed themselves of *all* the good things at their command. (See page 2, ad. dept.)

WILLIAM R. JENKINS' list of veterinary books on page 8 (ad. dept.) is certainly attractive to members of the veterinary profession, and should set them thinking of how much they owe to that house for the veterinary literature in this country.

THE "Soluble Hypodermic Tablets" of the Buntin Drug Company continue to grow in popularity. Their list on page 11 (ad. dept.) is very interesting.

HAUSSMANN & DUNN CO., whose famous "Emasculator" and "Mouth Speculum" have become popular the world over, are prepared to supply the profession with their instruments in any quarter of the globe from which they receive orders.

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